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VOL. XVII JANUARY, 1919 No. 1

SANTA BARBARA, 1919.

The plans of the Committee on Scientific Program for the annual meeting of the California State Society of Medicine in April are rapidly maturing. A somewhat different program policy is being developed. Quality and not quanity will be the object. Various features are already outlined which will assure a meeting well worthy the attendance of every doctor in the state. It would be advisable to secure your reservation at the Hotel Potter, Santa Barbara, very early this year. There is still opportunity for a few additions to the list of papers to be presented. Those desiring to present papers should communicate at once with the secretary of the program committee, Dr. F. M. Pottenger, Monrovia. The number of papers will be considerably reduced. Special attention will be devoted to civil rehabilitation and the translation of military medical experience into terms useful in civil and post-bellum practice.

REDUCING INDUSTRIAL FATIGUE.

California industries are to a high percentage represented by agriculture in some form. Factories and industrial plants of similar sorts have thus far received the major emphasis in considerations of industrial hazards, handicaps and factors of increased production. It is probable that all industrial activities, including agriculture, will soon receive merited attention from these standpoints. As in all industrial advance, the physician is closely associated here and will have an important part to play in the future development of California on industry, including agriculture. In this latter regard the physicians of rural and small town districts will be chiefly concerned.

A recent study of methods for reducing industrial fatigue[1] arrives at conclusions which are to a great extent applicable to agriculture as well as to more centralized industries. Industrial fatigue is a handicap to the worker, as it affects his health and earning power, and to the employer as it decreases production and makes it more expensive. Industrial fatigue is measured by decreased output, decreased consumption of power and material, and by the amount of spoiled work, accidents and sickness. There are also various objective laboratory methods of measuring fatigue, through study of muscles, nerves, sight, hearing and metabolism.

Fatigue may be reduced in certain definite ways to mutual advantage of worker and employer. Recess periods and variety of work are among the most important methods. Good ventilation, adjustable seats, elimination of unnecessary motions and alternation of day and night work, are all to be considered. Sanitary conditions deserve special attention. Adequate and proper lighting, abundant drinking water, attractive rest rooms especially for women, clean modern toilets and good washing facilities, should be provided. Omission of Sunday work and sanitary living conditions are important.

It would be worth while for every physician to figure a little on the application of these various points to whatever industry is located in his immediate vicinity. How would you study the industry to find what was needed? What specific changes would you recommend? What definite things would you advise to decrease accidents? What types of accident are most common and why? What diseases are most common and why? Here is a line of study open to nearly every physician, whether in city or country, and offering very definite personal and public rewards.

1 U. S. Pub. Health Service, Pub. Health Reports, Aug. 16, 1918.

OF FADS AND SPECIALISMS.*

The plant that is healthy, exhibits its exuberant vitality in side-shoots, suckers and indiscriminate new growth. A substantial portion of this new growth is directed in the general line of development which nature designed for the plant. The suckers and other exuberant evidences of over-abundant vitality, once in a great while furnish some bud or branch which proves worthy of inclusion in the general structure of the parent plant by the gardener. As a rule, however, the suckers are pruned off by the gardener and serve a two-fold function. They rot and enhance the general fertility of the soil, while the sap which once flowed into them is diverted to the general strength and beauty of the plant.

Thus medical science is a plant and Time the gardener. Its exuberant over-abundant growth in this generation is exhibited by the large cult of fads and specialisms which encumber its progress, suck up its sap and at times seem almost to smother some of its more tender branches. These fads and specialisms, however, bespeak a super-abundant vitality both of the plant of medical science and of the plant of knowledge and judgment in the human race. Time, the gardener, here also exercises his all-important function. Some few side-shoots and excrescences he finds good and incorporates in the mother plant. The great bulk, however, he cuts off and their rotting decadence adds fertility to the soil of medical progress and enriches the horizon of scientific history, while the sap that once was theirs, flows with added power in the veins and channels of the science of modern medicine. So has it been, so is it, and so shall it be. They serve their purpose and their time, add their mite to human progress, and vanish, to leave place for new crops of similar significance and equal permanency.

From many, observe a few examples. Osteopaths have no moral right to be called physicians or surgeons, but only osteopaths. As members of a specialism, exercising a certain limited function, they have a place in the sun and a right to offer their services to the public. They have no moral right to offer services which they have not been educated to render and which, from lack of proper education, they are incompetent to perform. For them to pose as physicians and surgeons, is plain declaration that they do not consider osteopathy as complete or desirable as the practice of medicine and surgery, and that they are unsatisfied with what osteopathy offers. Let them be a specialism in the great field of the preservation of human health.

If they have a definite contribution to scientific medical practice, time will evaluate it and they will receive recognition definitely proportioned to the value of that contribution. If they prove to bring no such contribution, time will automatically eliminate them. Time and nature are the great purifiers, the great experimental scientists, and infallible physicians. What is good, they keep. What makes no contribution to life and renders no real service, they prune off and discard. Let time decide and not ourselves. For our part, let us do our own work, content to abide by time's decisions.

Homeopathy has undergone a decrudescence illustative of this principle. Many other specialisms and fads, both within the circle of the profession, on its borders and outside even hostile to it, have had their day, risen, flourished, survived or fallen, according to the real contribution they could make to the healing art. "The art is long and time fleeting," were better rendered, "The art is long and time is its preceptor." Eddyism, as a type of present-day mental healing fads, will have the same experience. What time proves of value in it, will survive. Better, what it has picked of random truth from the tree of human knowledge, what it has selected for itself of surviving truth from older and well-delineated systems, will continue to functionate for a time, doubtless, under the guise of an Eddyistic specialism, eventually as part and parcel of the great science of the preservation of human life.

We do not fear time's judgment. The prunings of life's gardener do not terrify us. We do not hesitate to accept all that is good, and proved, and useful, no matter whence its origin. Why think it strange that new knowledge and new revelations of enduring law can only come from approved and accepted sources? We are physicians. That is, we delve in the processes of nature herself. We are doctors. That is, we are teachers and leaders. We work hand in hand with nature. We interpret nature to human-kind and reconcile men to nature. We hold fast to what is good and discard that which has no contribution for our work. Here is our credo, and here our ideal.

Certainly let fads and specialisms flourish. Out of them may come new building stones. They may but serve to enrich the soil and increase its fertility. Whatever things in them are good, will survive, and after being pruned by time, will be incorporated in the complex body of medical science. We do not fear them. We do not nurture them. We await time's judgment. For the living, sentient body of scientific medicine is vastly greater than any of its parts. It is in constant growth and constantly it sloughs off the binding ties of outworn beliefs and disproved traditions. Its constant change is its life. Surely it is vital and big enough to demand our allegiance, not to any of its numerous and often distantly related branches, but to the great and strong central organism of medical science.

* A specialty is taken to be a narrow department of a large field, approached through the door of wide acquaintance with the entire field, and based on a solid foundation of broad education and specialized research and thought. A specialism may be considered a narrow department inhabited by one who never sees the broad field, and who is unfitted by lack of a solid foundation, to appreciate or study the broad field.

SCHOOL ATHLETICS.

The post-war period of civil rehabilitation offers some of the knottiest problems with which physicians of this generation have had to deal. Two factors contribute to the urgency and difficulty of their solution. One of these factors is the public civil urge for improvement in social, economic and health conditions, an urge which will become irresistible with the addition of the demobilized military to the civil population. The other factor is the necessity for translating our military experience into terms applicable to civil problems following the war. To no post-bellum problem are these two factors more closely related than to the problem of school athletics, and amateur competitive athletics. And to no problem has less attention so far been given, seeking to satisfy the conditions of the two factors just enumerated.

It is unnecessary to review the observations and data of the last decade showing the physical evils of over-training and over-straining induced by competitive school athletics. In his annual report for 1912, Surgeon-General C. F. Stokes, U. S. N., recommended, in view of these evils, that "athletics in the Navy be so regulated as to avoid these deleterious conditions by the prohibition of endurance contests where the ability to win is largely, if not entirely, dependent upon brute force, and that rather the maximum effort be made to develop a symmetrical, normal physique in the many instead of a highly specialized human machine in the few." For the "win at any price" slogan, faculties, trustees, student bodies and alumni were alike and equally responsible. This policy must give way to one which is saner, more modern and more scientific.

The general opinion among medical and military men, that something is wrong with the old system of athletics, is exemplified in the system of physical development developed in the military organizations. The results of this system, whereby every individual receives all-around symmetrical development, are universally beneficial. It remains to re-organize school and college athletics on similar lines. The proved methods of military physical training must be taken over into school and civil life, and similar beneficial results will as certainly follow. The proper function of universal military training, which it is earnestly hoped will be established in the United States at once, is to inculcate discipline, provide proper physical training, both normal and corrective, and to develop a homogeneous national sense which is our strongest bulwark against anarchy and foreign invasion. These great lessons from military experience must not be lost.

The re-organization sadly needed in school and college athletics is epitomized by D. F. Luby[1] as follows: "All branches of athletics must be reclassified on the basis of their effects on the heart and other vital organs, and we must discard the old classification based upon popularity and commercial advantage. In the grammar school the form of athletics in which a boy would be permitted to engage would depend upon his family and personal history, his physical status, height, weight, etc." The same system would follow in high school and college, combining both physical and tactical athletics. "Outside competitions with other schools would be reduced and the competitive idea find its illustration principally in interclass games. Work in the gymnasium should accompany and parallel the work done in teams and athletic games. Mass competition, such as that in which a class would participate as a whole, is to be encouraged. New feats of prowess should be introduced. There should be walking contests, wall-scaling contests, obstacle racing, hurdling, soccer football, etc. Athletics of to-day must be remolded and their object clearly defined. Athletics can surely have no better purpose than to develop a robust and healthy boy who, though he may not be an interscholastic champion, will nevertheless enter upon his life work with a symmetrical, fully-developed body, capable of resisting disease and of enduring physical strain."

[1] U. S. Med. Bulletin, Oct., 1918.

EDITORIAL COMMENT.

We need to remind even ourselves that the term "practice of medicine" no longer means "practice of physic." We have here an example of the transference of a name to a developing idea, which idea connotes and includes vastly more than the name applied to it. The "practice of medicine" is a survival which should be supplanted by a name of exact definition and connotation, based on sound generic classification, and suited to the modern scientific idea of the preservation of human health by all methods available.

The British parliament, in 1915, instituted a board of liquor control, which had also to do with maintaining the efficiency of workers. This board established canteens and eating houses which were comfortable and attractive. The proprietors were paid on a commission basis, a larger rate being allowed on edibles, and no commission allowed on intoxicants. Lower strengths of spirits and beer were legalized. Every effort was made to lower drunkenness, especially at week-ends. The campaign met with marked success.

There is the best of theoretic and practical evidence establishing masks as perhaps our strongest single weapon in preventing influenza. We know that influenza, like pneumonic plague, is spread by droplet infection, and we know that they both can be prevented by masking. San Francisco's experience demonstrates this conclusively on a large scale. Masking ought to be enforced in every community which desires to eradicate influenza. The mask keeps in the infection in the carrier and ambulant case, and on the other hand excludes infected droplets from the sound person. They are logical, according to our best scientific knowledge. They are practically effective. They ought to be used universally wherever influenza is epidemic.

In another column will be found an important statement of What Every Disabled Soldier and Sailor Should Know. With demobilization in progress, this information needs the widest circulation. Every physician is urgently requested to help make this information available for all disabled soldiers and sailors, and their families.

The general trend toward lower prices makes it doubly worth while to keep in touch with the advertising pages of the Journal. These pages chronicle the best in medical supplies and institutions, and the busy doctor has the endorsement of the State Medical Society to guide his choice. If you have a location to buy or sell, or anything else to buy or sell, save time and money by putting an ad. in the Journal.

Quarantine is only effective against influenza when absolute. It does not meet the carrier problem or the undiagnosed mild case. It is far less effective than masking, avoidance of public assembly and personal preventive measures, such as abundant fresh air, abundant food, abundant sleep. It ought to be enforced, along with universal masking, as the two together constitute our chief defense against influenza.

The Public Health Committee of the New York Academy of Medicine recommends an amendment to the Sanitary Code making it a misdemeanor to sneeze or cough in public without the mouth and nose adequately covered.

On the basis of experimental work conducted at Johns Hopkins Hospital, Howland and Marriott, conclude that tetany is caused by a reduction in the calcium content of the blood below 6. or 7. mg. per 100 cc. The figure varies with different individuals. Symptoms of tetany appear when the blood content of calcium falls to this level, and these symptoms are relieved and prevented by repeated doses of calcium. The calcium deficiency seems to be due to some as yet unknown primary factor and administration of calcium must therefore be constantly maintained for an indefinite period.

In a review by Chaney & Hanna of the safety movement in the iron and steel industries for the decade ending in 1917, issued by the U. S. Department of Labor[1] it is stated that safety men are thoroughly convinced that the use of alcohol is an important factor in causing accidents. The lack of proper statistics on a large scale makes it difficult to estimate the exact extent of this influence. The practically unanimous opinion of as competent a jury as the safety engineers of the country is, however, in itself a weighty argument. The list of industries and plants which forbid the use of alcoholic beverages is rapidly growing. There is no argument in industry favoring booze.

1 Bulletin U. S. Bureau of Labor Statistics, p. 234, June, 1918.

Is it not strange that every nation recognizes the dangers and potential disaster in alcoholic beverages, and yet many persons still insist that education will remedy the alcohol evil. Why not educate people in the dangers of cocaine and morphine, instead of having a Harrison act?

The psychology of war as exemplified in that just ended, shows that in peace-time peoples incline to self-indulgence, become self-centered, selfish, and lose many of their higher ideals. War develops the heroic, the self-sacrificing, lifts people out of themselves and propagates altruism and unselfishness. This it does at a definite price, paid in death, disaster, misery, and suffering. A certain large percentage of this price is paid by innocent persons. Would that we had some vicarious means of securing the great advantages that war brings.

THE FOURTH LIBERTY LOAN THE GREATEST SINGLE EVENT IN FINANCIAL HISTORY

The United States Government asked a loan from the people of the country of $6,000,000,000, an amount unprecedented in all the history of the world. In three weeks' time, in spite of an epidemic of influenza which prevented public meeting and cost the people many millions of dollars in medical bills and lost time, and in spite, too, of the peace rumors that in some instances had a tendency to make the success of the loan seem less vital, some 21,000,000 of the American people offered to the Government $6,866,416,300. Each Federal Reserve district oversubscribed its quota. Thousands of cities, towns, and communities oversubscribed their quotas. Secretary McAdoo says that the Fourth Liberty Loan is the greatest single event in financial history.

IMPROVING CITY MILK SUPPLIES

Sanitary milk control—an important factor in city welfare and a big problem of the city health department—receives personal attention from the Dairy Division of the United States Department of Agriculture. Specialists in sanitary production and handling of milk are usually available, and upon request of the city health departments they are sent to assist in improving the milk supply. This assistance may mean the making of a general survey lasting only a few days or a very intensive inspection lasting two or three months.

During the last year personal aid was given to 36 cities in 14 States. In addition to this, assistance was given the United States Public Health Service by conducting sanitary milk surveys and in improving the milk supply of 15 extra cantonment zones.

All phases of city milk supply are covered. Inspection of dairies, milk plants, and other distributing centers are made; samples of the products are taken and analyzed both chemically and bacteriologically. When necessary, help is given in the installation of laboratories and technique and in the interpretation of the results of chemical and bacterial analyses.

Special meetings may be held among both producers and consumers of milk in order to arouse interest in the local milk supply. Advice in framing ordinances to cover dairy and milk conditions is also offered.

An important feature is the milk contest, in which specialists assist in instituting these contests and act as judges in scoring the product to determine the relative standing of milk producers. These contests encourage rivalry among dairymen and, in consequence, tend to improve the milk supply of a city.

Original Articles

THE TREATMENT AND LABORATORY CONTROL OF DIABETES.*

By LOVELL LANGSTROTH, M. D., San Francisco.

Recently there has been established in the new Hospital Building of the University of California Medical School a laboratory for the study of chemico-clinical problems, and it has been my privilege to have the work on diabetes under my care. In view of the importance of this work and the fact that it is a relatively new venture on the Pacific Coast, I have ventured to discuss before you a few of its interesting phases and to outline the manner in which we follow the progress and treatment of diabetes in the laboratory. It should be explained that such work requires a large chemical laboratory equipped in addition, with such special chemicals and glass apparatus as are required. We have found the work so time-consuming that it has required almost the entire labor of a technical assistant to carry on the work for two or three patients, but are convinced that with greater experience it will be possible to carry on as many as six patients with the same help.

Before taking up in detail the different determinations that are made, it will be of advantage to outline briefly the routine followed in the prescribing of the diet, and the collection and preservation of the twenty-four-hour specimens of urine.

When the patient first enters the hospital he is put on a low caloried diet which contains about one gram of protein per kilogram of body-weight, carbohydrate in amounts varying from fifty to seventy-five grams, and fat according to the apparent severity of the case. After the first twenty-four hours it is possible to form some idea of how much carbohydrate the patient can burn; in other words, to determine the approximate severity of the case. In a mild case the urine will be sugar free perhaps, and all that will be necessary in that particular case will be to determine how much more carbohydrate and fat the patient will tolerate. In a severe case, all of the carbohydrate and perhaps a portion of the protein will be excreted as sugar, and this case will certainly require several days' fast to make the urine sugar free. The amount of acidosis will also have been determined by then. In severe cases with acidosis, it is often wiser to withdraw food gradually, so as to avoid the danger of throwing the patient into coma. This was emphasized to us by the loss of a patient who came into the hospital before the laboratory was prepared to do all of the necessary work. Her ammonia was low on a low caloried diet with moderate amounts of carbohydrate, and clinically she showed no signs of acidosis, so that her fat was withdrawn the first day. The following morning, though she had been on a low protein and carbohydrate diet for the preceding twenty-four hours, she suddenly developed the deep sighing respiration of acidosis, passed into coma and died in spite of all we could do. Had we known that her plasma bicarbonate was low (it was twenty-two the morning she went into coma) we should have withdrawn her food much more gradually than we did. If a fast is necessary, broth or coffee is given every two hours or as often as desired by the patient. We have found that whiskey often nauseates and do not believe that the few calories furnished by it are of much significance. After the urine has remained sugar free for twenty-four hours, feeding is begun. The amount of food first given will depend on the preliminary twenty-four-hour period before the fast. In a very mild case possibly thirty, forty, or even fifty grams of protein, fat, and carbohydrate may be given. In severe cases only five or ten grams of each element are given. Protein and fat are then gradually raised by five- or ten-gram additions each until the patient is receiving one gram of protein per kilo of body-weight. If acetone bodies are excreted in considerable amounts during this period, carbohydrates are raised instead of the protein, but this must be done more gradually, allowing several days to pass after each addition to determine whether it is going to fall within the patient's tolerance. When the tolerance for carbohydrate and protein is finally reached, fat is added to make up the necessary caloric requirements, and the patient is then ready for discharge. During this period of treatment the method of making out the diet sheets is explained to the patient, who is provided with proper lists of food values and will in many cases be able to arrange his own diets.

The urine is saved in twenty-four-hour specimens and preserved with toluene, care being taken to have the receptacle scoured out each morning with soap and water. The naked weight is taken daily after the patient has voided for the completion of the twenty-four-hour specimen.

When the urine reaches the laboratory it is measured carefully in cubic centimeters and then analyzed quantitatively for total nitrogen, ammonia nitrogen, creatinine, sugar, and acetone bodies.

Nitrogen determinations are made by the Kjeldahl method, or more recently by the direct Nesslerization method of Folin, with a resulting great saving of time. In this method one c.c. of diluted urine is digested with a mixture of sulphuric and phosphoric acids, washed into a volumetric flask, diluted, neutralized, Nesslerized, and compared in a Dubosc colorimeter with a solution of ammonium sulphate containing one milligram of nitrogen and similarly treated and Nesslerized. We feel that the nitrogen determination is hardly an essential element of the urine analysis. Roughly it gives some idea of the amount of protein the patient is metabolizing, but on a varied diet for which the same amount of protein, fat, and carbohydrate is prescribed each day, the number of grams of nitrogen excreted will vary a good deal and take quite unexpected jumps in one direction or the other. This is well illustrated in Chart 5, where it will be seen that while the average nitrogen output varies between four and eight grams, still for the 25th, 26th, and 27th of January, the patient put out respectively nine, twelve, and twelve grams.

* Read before the Forty-seventh Annual Meeting of the Medical Society of the State of California, Del Monte, April, 1918.

Moreover, during starvation an amount of nitrogen which is the equal of about one gram of protein per kilo of body-weight is given off daily in the urine, so that with a low protein diet in which we merely try to replace this body protein a relatively fixed nitrogen excretion should be obtained. Chart 2 will illustrate this point. On the 17th and 18th of December, when this patient was starving, he put out respectively ten and ten grams of nitrogen, and this is about his average output for the whole period of study. Any excess of protein over this amount would show immediately in the urine. If a patient exceeded his given amount of protein a ready means of detecting it would be at hand in the nitrogen determination. It will be noticed in Chart 5 and Chart 1 that for the first three or four days, the nitrogen output is much higher than that of the succeeding days. This, of course, is due to the fact that the patient had been living on a relatively high protein diet before admission to the hospital. A uniform amount of total nitrogen each day can only be expected when the diet for each day is essentially the same in amount and in elements. Turning to Chart 6, a metabolism study of a gouty patient where the diet was liquid and composed of practically the same elements each day, it will be seen that after the 3rd of March the total amount of nitrogen is practically constant each day. A good idea of the nitrogen metabolism can be obtained by summing up the nitrogen for the entire week and then dividing by seven. This amount will be found to compare almost exactly with the amount of protein ingested in the diet. On a mixed diet it will be found generally that less nitrogen is metabolized than when a protein rich diet is taken, and the reason for this is that in the presence of cellulose and indigestible residue, the nitrogen is less completely absorbed than when it is taken in the form of meat, milk, or eggs.

We have determined the urea nitrogen as a part of the nitrogen partition. We are not prepared to say as yet, whether the urea nitrogen has any practical significance for us.

The ammonia has been determined usually by the Folin macro aeration method, but latterly by the Permutit method recently published by him. Here the ammonia is extracted from the urine by a granular material which much resembles sand. It is later liberated by addition of an alkali, nesslerized, and compared with a standard solution of ammonium sulphate similarly treated. This method is very rapid and extremely accurate. We feel that the ammonia figures give only a fair indication of the amount of acidosis. Usually the twenty-four-hour amount will total under one gram, but in the presence of acidosis it will run up to four, or five grams, or even to a much higher figure. As a measure of acidosis, it falls far below the plasma carbon dioxide, because in exceptional cases it will remain low even with severe acidosis. Take, for instance, Chart 1, where from the 15th to the 20th of December the patient excreted amounts of acetone bodies varying from fourteen to nineteen grams. Even with this amount of acetone excretion, his plasma bicarbonate sank only to just below the lower limit of normal. His ammonia excretion would be expected in the presence of such considerable amounts of acetone bodies, to show quite a rise; but on the contrary, increases to only approximately twice what it was before, and does that rather tardily. It might be pointed out in this same chart that excretion of such amounts of acetone bodies, when controlled by the plasma bicarbonate determinations, is not at all alarming, because we are assured that the alkali reserve has not been impaired to any extent.

Creatinine determinations are made daily. Normally the amount of creatinine runs quite constantly, between one gram and a gram and a half, so that the daily amount may be used as a check on the accuracy of the urine collection. You will see in Chart 2, that there are marked variations in the daily amounts of creatinine. This record was made before we had succeeded in training the nursing staff to make accurate and complete collections of the urine, and when we permitted them to measure the total twenty-four-hour amount in the ward. With creatinine determinations like the ones in this Chart, all the results are open to considerable question. Since then we have initiated the custom of sending the whole twenty-four-hour specimen to the laboratory to be measured by the technician, and the creatinine determinations now run much closer. Take for instance, Chart 4, where the creatinine runs pretty steadily at .8 or .9 of a gram. Occasionally, however, there is a much diminished amount, as in Chart 1, on the 21st of December, when the amount of creatinine dropped to almost one-half what it had been running. On questioning the nurses, we invariably find that there has been some of the specimen lost in some manner. This is, of course, very important in explaining unusual jumps in figures which run pretty constant.

The subject of sugar determinations is familiar to all of you. We use Benedict's solutions for both the qualitative and quantitative work. A word of warning should be given against using the U. S. P. sodium citrate in making up the solution as the results are far less satisfactory. This, of course, is the material which the druggist will use if he makes up the solution for you. Since 60 per cent. of protein may be converted into glucose, we reckon the carbohydrate balance by adding 60 per cent. of the amount of protein given to the carbohydrate in the diet and subtracting the amount of glucose excreted in the urine. In Chart 3, the carbohydrate balance has been expressed in this manner. You will see that the patient had a positive carbohydrate balance on admission, and this is the case with all of the rather mild cases that we have had. Severe cases would, of course, show a negative balance before starvation.

The acetone bodies are estimated by a new method of Van Slyke. This depends on the formation from acetone and mercuric sulphate of an insoluble precipitate which is filtered on a Gooch crucible, dried, and weighed.

The combining power of the plasma for carbon dioxide is determined twice a week, or daily if

Delbon, August Age, 47 yrs. M.15710

Date	Volume	Total N.	Amm. N.	Creatinine	Chlorides	Acetone Bodies	Sugar	Protein	Fat	Carbohydrate	Calories	Carbohydrate Balance	Blood Sugar	Blood Chlorides	Plasma CO_2	Liquid Intake	Naked Weight
Dec. 12	1180	8.76	.433	1.24	4.01	0	55.7	60	100	60	1416	+40	.174	5.62	65.3	950	
13	1750	18.13	.544	1.07	10.16	0	35.8	60	100	60	1416	+60				950	
14	2300	20.62	.638	2.02	9.43	0	0	0	0	0	0					2750	72.8
15	2360	32.70	.793	1.55	8.02	14.3	0	0	0	0	0				64.3	2050	72.2
16	1920	13.45	.629	1.41	8.45	15.25	0	10	10	5	159	+11				750	71.6
17	1930	17.74	.843	1.16	5.79	19.50	0	15	10	5	179	+14	.119	5.81	51.9	1000	
18	1760	17.24	1.41	1.14	4.93	17.40	0	15	10	5	179	+14				1250	
19	1630	15.98	1.825	1.08	4.63	15.29	0	20	20	5	293	+17	.138	5.62	54.8	1500	
20	1770	17.35	1.214	1.16	3.09	15.80	0	30	20	5	334	+23				1350	
21	1200	13.78	1.47	.68	5.28	4.28	0	30	30	20	484	+38				800	69.4
22														6.12	63.3		

Rosenberg, Herman Age 58 yrs. S.15699

Date	Volume	Total N.	Amm. N.	Creatinine	Chlorides	Acetone Bodies	Sugar	Protein	Fat	Carbohydrate	Sod. Chloride	Calories	Carbohydrate Balance	Blood Sugar	Blood Chloride	Plasma CO_2	Naked Weight
Dec. 13	1500	10.29	.260	.86	7.50	.835	31.5	52	100	75		1450	75		5.75	67.2	44.4
14	1550	16.06	.491	1.16	7.13	0	10	47	100	75		1429	93				43.7
15	800	5.15	.121	.54	4.88	0	10.5	50	31	75	7	800	95			71.0	43.2
16	930	7.16	.182	.62	5.76	0	3	22	27	74	10	644	84				43.4
17	1250	10.15	.693	1.05	10.25	0	0				10			.11	5.5	68.1	43.
18	1260	10.32	.169	.80	8.82	0	0				10			.092		66.2	43.2
19	945					0	0	10	5	10	13	128		.094	4.37	72.	43.
20	870	8.77	.129	.51	6.09	0	0	20	20	5	10	140					42.9
21	1045	11.27	.234	.77	8.99	0	0	20	20	20	10	202					42.1
22	1045	10.62	.210	.93	10.25	tr.	0	20	20	20	10	202					41.9
23	1150	11.28	.225	1.01	13.85	tr.	0	20	20	20	10	202					42.
24	1125	9.77	.378	.76	15.8	.812	0	20	20	20	10	202		.071	4.25	70.	41.6
25								20	20	20	10	202					42.2
26								20	20	20	10	202					41.8
27	1430	9.21	.176	.92	19.16		0	30	30	20	10	484					41.6
28	980	10.70	.301	.75	13.24	tr.	0	35	35	20	10	551		.076	4.25	59.5	42.5
29	1150	12.56	.309	.89	13.46	tr.	0	40	40	20	10	618					42.4
30	1870	11.52	.366	.86	20.38	tr.	0	45	45	20	10	685					42.9
31	1380	7.15	.135	.60	21.40	tr.	0	45	45	35	10	746	72				43.
Jan. 1																	42.5

Fillipini, William Age 24 yrs. M.15893

Date	Volume	Total N.	Amm. N.	Creatinine	Chlorides	Acetone Bodies	Sugar	Protein	Fat	Carbohydrate	Calories	Sod. Chloride	Carbohydrate Balance	Blood Sugar	Blood Chloride	Plasma CO_2	Liquid Intake	Naked Weight
Jan. 3	800	8.85	.381	1.22	8.48	.48	24.2	55	110	75	1555	6	+117	.25	5.75	69.1	1500	55.6
4	1100	9.66	.286	1.15	7.70	.452	26.30	55	110	75	1555	7	+115				1500	55.6
5	750	7.88	.218	1.35	3.30		0	0	0	0	0	5					2000	55.5
6	1100	12.48	.323	1.35	6.60	.146	0	0	0	0	0	5					2000	56.
7	2150	8.72	.265	1.05	6.88	.393	0	10	10	10	175	3.5		.089	5.25	57.6	2000	55.8
8	1710	11.01	.469	1.17	3.59	.230	0	15	15	10	241	5					2000	55.
9	1900	11.11	.659	1.25	5.89	.334	0	15	15	10	241	5					2000	54.4
10	1800	11.09	.232	1.06	7.20	.233	0	30	30	10	443	5			6.00	59.5	2000	54.
11	1670	10.28	.419	1.14	12.70		0	35	35	10	509	5					2000	53.8
12	1610	9.91	.293	1.18	5.15		0	35	35	25	571	5					2000	53.6
13	1700	10.47	.209	1.21	7.65		0	35	35	25	571	5					2000	53.6
14	1850	9.84	.155	1.07	7.77		0	35	35	25	571	5		.093	5.47	70.0	2000	53.4
15	2240	11.91	.163	1.29	8.73		0	55	55	25	840	5					2000	53.4
16	2060	10.67	.104	1.26	8.24		0	55	55	40	901	5					2000	53.4
17	2350	12.17	.105	1.27	9.87		0	55	55	40	901	5		.087	5.81	70.	2000	53.6
18	2390	8.7	.180	1.15	8.12		0	55	55	40	901	5					2000	53.
19	1810	6.58		1.12	6.34		0	55	55	55	962	5					2000	52.8
20	2050	7.46		1.03	5.12		0	55	55	55	962	5					2000	52.6
21	1620	9.97	.145	1.31	5.83		0	55	55	55	962	5		.097	5.63	72.9	2000	53.
22	1880	11.58		1.24	6.27		0	55	55	70	1024	5					2000	53.
23	1720	9.16	.13	1.19	6.78		0	55	55	70	1024	5					2000	53.
24	1950	10.38		1.27	15.28		0	55	55	70	1024	5			5.56	69.1	2000	53.
25	1860	13.03		1.20	9.48		0	55	55	85	1085	5					2000	53.
26	2050	14.36		1.26	7.38		0	55	55	85	1085	5					2000	52.8
27	2040	14.28		1.22	9.79		0	55	55	85	1085	5					2000	52.8
28	2000	14.00		1.31	8.40		0	55	55	100	1147	5		.101	6.13	71.0	2000	52.8
29	2030	14.22		1.39	7.92		0	55	55	100	1147	5					2000	52.8
30	2130	14.92		1.28	7.46		0	55	55	100	1147	5					2000	52.6
31	2120	14.85		1.25	8.48		0	55	55	115	1209	5		.220	6.13	71.0	2000	52.6
Feb. 1	1950	8.74		1.26	6.02		0	0	56	55	116	1213	5				2000	52.4
2	2480	11.11		1.21	7.44		0	0	55	55	115	1209	5				2000	52.4
3	2370	10.62		1.23	7.58		0	0	55	55	130	1270	5				2000	52.6
4	1480	6.63		1.09	7.25		0	0	55	55	130	1270	5	.114	6.12	66.2	2000	52.2
5	2820	12.63		1.39	7.04		0	0	55	55	130	1270	5				2000	52.2
6	1860	8.34		1.18	5.76		0	0	55	100	115	1627	5				2000	52.
7	2140	9.59		1.12	9.63		0	0	55	150	115	2092	5	.079	5.56	71.	2000	52.
8	2020	8.49		1.16	8.28		0	0	55	150	115	2092	5	+148			2000	

Randall, Mrs. Elizabeth Age 41 yrs. S.13281

Date	Volume	Total N.	Amm. N.	Creatinine	Chlorides	Acetone Bodies	Sugar	Protein	Fat	Carbohydrate	Calories	Sod. Chloride	Carbohydrate Balance	Blood Sugar	Blood Chlorides	Plasma CO_2	Liquid Intake	Naked Weight	Sod. Chloride in Food
Dec. 31	1025	8.04	.293	.92	9.06	tr.	47.5	General diet										59.5	
Jan. 1	1130	10.76	.367	.91	9.54	tr.	28.0	60	100	75	1483	7	86				1475	58.6	1.4
2	1650	8.78	.259	.86	9.57	0	0	60	100	75	1483	7	111	.246		67.2	1500	59.2	1.64
3	860	5.90	.224	.87	4.30	.119	0	0	0	0	0	7					1500	59.6	
4	1475	7.44	.322	.89	7.08	0	0	40	40	40	700	7		.162	6.5	62.4	1500	58.8	.789
5	980	11.58	.191	.916	5.79	0	0	50	50	40	834	7					1500	58.	1.32
6	1660	10.23	.381	.735	8.80	0	0	60	60	40	968	7					1500	57.6	.734
7	2000	12.04	.28	.64	7.60	0	0	60	60	55	1029	7		.133	5.88	63.3	1500	57.6	1.38
8	1860	7.29	.297	.81	11.16	0	0	60	60	55	1029	6					1500	58.3	.968
9	1800	7.56	.252	.80	10.8	0	0	54	54	55	948	7					1500	57.4	1.19
10	1800	8.57	.323	.76	7.48	0	0	60	60	70	1091	7			6.44	61.4	1500	57.6	.824
11	1780	7.73	.189	.84	14.42	0	0	60	60	70	1091	7					1500	57.8	1.37
12	1910	8.28	.155	.93	9.55	0	0	60	60	70	1091	7					1500	58.3	1.13
13	1800	7.81	.221	.94	9.9	0	0	60	60	85	1152	7					1500	57.5	1.45
14	1730	8.71	.159	.85	9.68	0	0	60	60	85	1152	7		.176	6.06	63.3	1500	57.7	.856
15	1650	8.31	.212	.93	9.08	0	0	60	60	85	1152	7					1500	57.9	1.25
16	1640	7.34	.193	.82	10.83	0	0	60	60	100	1214	7					1500	59.6	1.23
17	1850	8.29	.129	.86	9.25	0	0	60	60	100	1214	7		.143	6.25	64.3	1500	58.0	1.83
18	1730	9.93	.164	.84	8.82	0	0	60	60	100	1214	7					1500	57.7	1.33
19	1910	10.96		1.26	12.98	0	0	60	100	100	1586	7					1500	57.4	1.33
20	2100	12.05		.890	8.19	0	0	60	150	100	2051	7	136				1500	57.8	1.42
21														.102	6.12	62.4		57.7	

Mrs. M. McNeill Hospital No. M.16114

Date	Volume	Total N.	Amm. N.	Creatinine	Chloride	Acetone Bodies	Sugar	Protein	Fat	Carbohydrate	Calories	Sod. Chloride	Sod. Chloride in Food	Blood Chloride	Blood Sugar	Plasma CO_2	Liquid Intake Dist. H_2O	Naked Weight	Titratable Acidity of Urine Ammonia and Titratable Acidity	c	D	$\frac{\sqrt{a}}{\sqrt{D}}$	$80-\frac{\sqrt{a}}{\sqrt{D}}$	Plasma CO_2 found	Difference
Jan.20	1800	13.1	.564	.744	10.08	0	134.3	General Diet						5.69	.326	65.3		63.6	295	701	389	701	14.74	65.2	65.3	...1
21	2150	17.47	.247	.802	9.03	0	149.4	"	"	"	"							62.7								
22	850	6.90	.745	.645	3.14	0	40.3	65	100	65	1432	4.9	1.55				1500	62.5							
23	860	6.80	.701	.659	2.53	0	0	0	0	0	0	?.					1800	63.							
24	900	6.80	.806	.789	3.51	1.905	0	0	0	0	0	?.		5.82	.112	61.4	1800	62.2	295	479	532	479	13.48	66.5	61.4	+5.1
25	1800	9.82	.415	.687	7.67	7.75	0	20	20	20	350	?.	.310				1500	61.3								
26	1700	12.86	.333	.640	9.38	12.20	0	30	30	20	484	?.	.327				1500	61.								
27	1700	12.84	.419	.643	9.69	13.82	0	40	40	20	618	?.	.351				1500	60.6								
28	800	6.05	.807	.682	6.32	8.64	0	45	45	20	688	?.	.398		.089	49.0	1800	61.5	368	944	1180	944	22.95	57.	49.	+8.
29	1180	8.92	.620	.654	5.95	6.91	0	45	45	35	746	?.	.271				1500	61.4								
30	810	6.12	.722	.650	5.91	4.97	0	45	45	35	746	?.	.401				1500	62.5								
31	1080	8.16		.70	7.46	5.41	0	45	45	35	746	?.	.614	6.86	.082	57.6	1500	62.7	281							
Feb. 1	850	3.49	.375	.611	3.40	0		0	45	47	50	824	?.	.368			1500	62.7								
2	1060	4.45		.609	6.78	0		0	45	45	50	807	?.	.468			1500	62.								
3	1700	7.14		.640	9.86	0		0	45	45	50	807	?.	.460			1500	61.6								
4	1280	5.38	.322	.830	8.19	0		0	45	45	65	869	?.	1.137	6.38	.125	67.2	1500	62.2	122	352	275	352	9.68	70.3	67.2	+3.1
5	830	3.49		.622	5.23	0		0	45	45	65	869	?.	.398				1500	62.6								
6	1740	7.31	.207	.705	10.62	0		0	45	45	65	869	6.8	.360				1500	61.9								
7	1350	5.67		.959	9.32	0		0	60	60	65	1070	?.	1.33	5.88	.111	61.4	1500	61.1	238							
8	1960	8.92	.164	.736	12.35	0		0	60	60	80	1132	?.	.521				1500	61.1								
9	1150	5.14		.916	7.12	0		0	60	60	80	1132	?.	.710				1500	62.1								
10	1340	6.09		.822	8.98	0		0	60	60	80	1132	?.	.769				1500	61.8								
11	1550	7.05	.225	.726	8.68	0		0	60	60	95	1194	?.	1.21	5.88	.112	64.5	1500	61.1	167	328	227	328	8.99	71.0	64.3	+6.7
12	1060	4.84		.850	8.80	0		0	60	100	80	1504	?.	.944				1500	62.7								
13	1850	8.42		.788	8.32	0		0	60	150	80	1969	?.	1.137				1500	62.3								

Actual NaCl in food for Feb. 6 determined as 2.4 Gm.
" " 7 " " 3.2 Gm.

Marich, Mr. Meo Age 47 Medical 16484

	Date	Volume	Total N.	Urea N.	Amm. N.	Creatinine	Uric Acid	Sod. Chloride	Protein	Fat	Carbohydrate	Calories	Sod. Chloride added	Liquid in dist. H_2O	Naked Weight	Uric Acid in blood	Sweetbreads
Feb.	25															11	
	26	1404	12.53	10.03	.344	1.35	.693	2.10	41	52	76		5	2000			
	27	1704	14.21	9.42	.465	1.36	.844	3.24	70	100	100		5	2000	65		
	28	1350	11.44	8.70	.520	1.20	.605	2.16	70	100	100		5	2000	64.8		
Mar.	1	900	16.67	6.05	.302	.87	.403	1.35	70	100	100		5	2000	64.6	10.4	
	2	1430	12.63	10.31	.260	1.13	.556	3.00	70	100	100		5	2000	63.5		
	3	1420	12.24	9.74	.179	1.09	.565	2.70	70	100	100		5	2000			
	4	1150	10.27	7.45	.249	1.01	.512	2.30	70	100	100		5	2000	62.4		
	5	1220	10.52	8.54	.350	1.16	.633	2.32	70	100	100		5	2000	62.		75
	6	1200	10.52	7.73	.374	1.11	.612	2.4	70	100	100		5	2000	62.	10.5	150
	7	1060	10.00	8.16	.260	.82	.536	2.54	70	100	100		5	2000	62.		
	8	1070	10.09	8.54	.086	.818	.499	2.57	70	100	100		5	2000	61.2		
	9	1500	12.50	6.90	.068	1.18	.552	3.00	70	100	100		5	2000	61.		

necessary. It is expressed in volume per cent. of gas combined with 100 c.c. of blood plasma. When abnormal acids are formed, they combine with the bicarbonate of the plasma using up the amount held in reserve and lowering its combining power for CO_2. The expression of this combining power then is an accurate index of the extent to which these acid substances have been formed in the blood. Most of our diabetics are mild cases and come to the hospital free from acidosis. After a couple of days' starvation, however, they usually develop a slight acidosis, and this acidosis, strangely enough, reaches a climax usually toward the termination of the fast or during the next succeeding days. Take, for instance, Chart 1. On the 15th, his second day of starvation, he put out fourteen grams of acetone bodies. This had increased by the 17th, at which period he was again being fed small amounts of food, to nineteen grams. On this day, when he excreted the largest amount of acetone bodies, his plasma bicarbonate reached its lowest level, fifty-one volume per cent. After that the acetone bodies gradually diminished and the plasma bicarbonate increased. Here the patient began to develop his acidosis during the fast, but it increased strangely enough to its maximum two days after he had begun to be fed. Practically the same thing happened in the case shown in Chart 5. In other words, the acidosis seems to come on as a result of the fast, and this, of course, seems in direct contradiction to the work of Allen, who has shown that in diabetes, fasting diminishes the acidosis. In severe diabetes, this is usually the case, but these mild diabetics more nearly approach the normal metabolism, and as might be expected react to starvation with a moderate acidosis just as a normal patient would. This acidosis diminishes gradually as food is given. I can illustrate this with an example of a young woman who was starving in the hospital for two days in an attempt to decrease her weight. There was no question of any diabetes here, but the patient on the second day had a plasma bicarbonate of 35, or about half the normal amount, and was distinctly dyspnoeic. She excreted eighteen grams of acetone bodies the same day. Her acidosis gradually diminished on feeding moderate amounts of carbohydrates. The increasing formation of acid bodies progressively lowers the plasma bicarbonate. As the plasma bicarbonate reaches a point below 55, we consider that the patient has an acidosis; above this point is within the normal range. A delay in the excretion of these acid bodies would probably result in a disproportion between the amount of acetone bodies excreted and the plasma bicarbonate, the latter being relatively too low. Such a condition might occur in an old patient or a young one with damaged kidneys, and would mean that the acidosis would be harder to counteract. At all events, the plasma bicarbonate is immeasurably the best method of determining the amount of acidosis, because it shows any change at its source. In severe cases, of course, it would be determined every day during the period of fast; later three times a week only. Van Slyke has determined the relation between the plasma bicarbonate and the acid excretion as represented by the ammonia excreted plus the titratable acid according to Folin. He determines the ammonia excretion and the titratable acidity in c.c. of N/10 acid for a period of two hours, calculating from these figures the total amount for the twenty-four hours, which represents the rate of excretion, and the amount per litre which represents the concentration. These bear a relation to the plasma bicarbonate which is expressed by the formula

Plasma Bicarbonate = 80—square root of (D·W—square root of C)

in which D = the rate of excretion
C = the concentration
W = the weight

He found in a series of diabetics that the plasma bicarbonate as determined by this formula agreed with the actual figures within ten points. That is, if the actual plasma bicarbonate reading corrected was 35, the figures reached by the formula would be between forty-five and twenty-five. As a matter of fact it is usually closer than this. We have determined the plasma bicarbonate and compared the actual figures with those of the formula in one case shown in Chart 5. Here the plasma bicarbonate as calculated from the acid excretion and as actually found is shown in parallel columns. The agreement is fairly close, the greatest difference being eight points. This would be sufficiently accurate for all clinical purposes.

We have made blood sugar determinations twice a week on each diabetic patient. Generally the blood sugar has been high on entrance, lowest during the fast, and somewhat higher on a low carbohydrate diet. Recent work has shown that it is highest at about two hours after the morning meal, provided that this is one low in carbodydrate, and this is the time when it has been our practice to take it. Practically it has given us very little information of importance in the treatment of the patients. Chart 5 is characteristic of the sort of results we have obtained from blood sugar determinations. On admission, the blood sugar on a general diet was .326. During the fast it dropped to .112, and a few days later to .089, which is the lower limit of normal. Gradually as the amount of carbohydrate in her diet was raised, the blood sugar rose to .112, which is within the limits of normal. The same thing holds good for other cases. In Chart 3, the patient shows a similar sequence with the exception of one day, on the 31st of January, when his blood sugar made an unexpected jump to about double what it had been. On the whole, our charts are characterized by the lowness of the blood sugar, and this would seem to correspond with the mild type of cases we have had for treatment.

From a practical point of view, the clinician must hold the laboratory responsible for two main points in the treatment of diabetes and these are: first, whether the urine is sugar free, and second, the degree of acidosis. It is important, of course, to know the amount of sugar. If the clinician can be sure of these two points, he can proceed safely with his treatment, provided that he understands the food values and has the necessary prac-

tice in making diet lists from his tables. The large majority of diabetics will necessarily be treated by the physician in general practice. All of our work should tend to make his problem clearer and easier for him. Complicated laboratory determinations are, of course, out of the question, and the ideal methods for the practitioner are the simplest. I am convinced that with the necessary knowledge of the principles of the treatment of this disease, and a little laboratory apparatus, it is possible for him to control these patients properly. The apparatus required will be concerned in the determination of sugar in the urine, qualitatively and quantitatively, and the degree of acidosis. I would suggest for the latter, the calculated plasma bicarbonate figures obtained from the acid excretion. The apparatus involved would be simply that for the determination of ammonia, which consists of the large, thick, 30 m.m. glass test tubes used for the Van Slyke determination of urea N/50, acid and alkali, sodium carbonate, a water pump for air suction, the necessary rubber stoppers, glass connections, rubber tubes, burettes, and indicators. The titratable acidity is determined even more simply by titrating 25 c.c. of urine of N/10 acid, using 1 c.c. of phenolphthalein as an indicator. Now the ammonia excretion for the twenty-four hours is calculated on the basis of a two-hour period expressed in c.c. of N/10 acid and added to the titrable acidity for the same period expressed also in c.c. of N/10 acid. Van Slyke has published curves from which the result can be read off without calculating the square roots necessary in the formula, so that there are no insuperable difficulties in the way of the clinician who desires to know the degree of acidosis in his diabetic patients, and who is willing to devote a few hours' time to simple laboratory work.

THE KARELL CURE REVIVED.

By NATHANIEL BOWDITCH POTTER, M. D.,
Santa Barbara, Cal.

From time immemorial some type of more or less complete starvation has been resorted to, in order to preserve failing bodily functions, and has even been made an integral part of the prescribed observances in more than one great religion. Biological support of the value of fasting has been adduced by many authors, in the hibernation of bears and the summer sleep of crocodiles. The grape cure employed for so many disorders, Naunyn's "green days," and more recently Allen's fasting period for diabetes, as well as Widal's salt restriction in nephritis may well be compared with the Karell Cure, largely employed in heart disease; for this last mentioned diet represents in its essentials a starvation both of food and of liquid. Excepting in a limited number of clinics and by a few physicians, we have until quite recently almost forgotten the well-proved value of this last named cure. Its revival has been justified by its success.

I have so frequently met with ignorance of the exact details of the diet among students, internes, and physicians in general practice, that my remarks upon the strict milk cure of Philippe Karell or upon such modifications of it as have proved useful in my own experience, need no justification.

In 1865, this acute observer, physician to the Czar of Russia, presented to the Medical Society of St. Petersburg, the effects of a carefully regulated milk diet in some 200 patients treated by himself and others.[5] Too wise a physician to ascribe the value of this diet to any nutritive or medicinal virtue in milk, he did not hesitate to insist upon accurate doses at exact intervals, and to credit its great efficacy when applied *"to all kinds of dropsical conditions, the asthma resulting from emphysema and pulmonary catarrh, to obstinate neuralgias originating from the intestinal tract, to hypertrophy and fatty degeneration of the liver, and in general to nutritional diseases sometimes the result of obscure gastrointestinal catarrh and followed by affections of the central nervous system."* He limited all liquid or food taken by the patient to skimmed milk in amounts of one-half to one glass (two to six ounces, or 60 to 200 c.c.) and at exact intervals three or four times a day. The patient's taste dictated the temperature of the milk; but Karell emphasized its being swallowed slowly, in very small amounts, intimately admixed with the saliva. If well digested, as proved by the existence of solid stools, the amount of milk was gradually increased, until at the end of the second week, two bottles were usually allowed. He insisted upon a scrupulous observance of regular intervals, and arbitrarily selected the hours of 8, 12, 4, and 8. Although during the first week difficulty was often encountered and each feeding seemed a very tiny dose, if his rules were followed patients complained neither of hunger nor of thirst. Constipation frequently occurred at first, a good sign, but it was generally promptly relieved by a simple enema, or by rhubarb or castor oil; if obstinate, coffee was added to the 8 o'clock feeding or stewed prunes or a toasted apple at 4 P. M. If the thirst was distressing, a little plain water or seltzer was allowed. If the desire for solid food in the second or third week became overpowering, Karell permitted a little white bread with salt, or with a small piece of salt herring; at 4 P. M. another piece of bread, and then once a day, in place of milk, a milk soup or a gruel. After five or six weeks of such a cure, the diet was modified according to the conditions, giving milk but three times a day and adding a dinner.

Karell cites cases from Niemeyer's clinic, but adds that his diet found less favor in Germany than in Russia and France.* Though discussed by Winternitz[6] in 1870 and warmly recommended by Hirschfield[7] in the early 00's for the treatment of obesity and some years later by the same author[8] for cardiac patients, it found little favor among the Germans. His[9] attributes this attitude to the influence of such authoritative clinicians as Curschman and Leyden, who objected to the cure on the ground that its diuretic action was by no means certain, and that so long a period of practical starvation was too dangerous for patients with weakened hearts; while Romberg held that the reduction of fat must be accompanied by a reduc-

* Perhaps due to the Franco-Prussian war, which, just as is already evident from the present war, must have seriously curtailed the distribution of medical literature.

TABLE I.

	Approximate*			
	Calories	Protein	Fat	COH.
1 Skimmed milk, 800 c.c.	303	27.2	2.4	41.8
2 Whole milk, 800 c.c.	570.7	26.4	32	40
3 Whole milk, 700 c.c. } 30% cream, 100 c.c. }	806.9	25.6	58	39.5
4 No. 2+ lactose ℥ i (30 grms.)	685.4	26.4	32	68.
5 No. 2+ lactose ℥ iii (90 grms.)	915	26.4	32	124.
6 No. 2+ oatmeal ℥ i (cooked and moist)	588.7	27.1	32.1	43.3
7 No. 2+ oatmeal ℥ iii	624.9	28.7	32.4	49.9
8 No. 3+ lactose ℥ i	921.7	25.6	58.	67.5
9 No. 3+ oatmeal ℥ i	825	26.4	58.1	42.8
10 No. 8+ oatmeal ℥ i	939.8	26.4	58.1	70.8
11 No. 3+ oatmeal ℥ iii lactose ℥ iii	1205.6	28	58.4	133.4
Skimmed milk, 1 oz. (30 c.c.)	11.4	1.02	0.09	1.53
Whole milk, 1 oz. (30 c.c.)	21.4	0.99	1.20	1.50
Cream, 30%, 1 oz. (30 c.c.)	92.3	0.75	9.00	1.35
Lactose, 1 oz. (28.35 grms.)	114.8	0.00	0.00	28.00
Oatmeal (cooked and moist) 1 oz. (28.35 grms.)	18.1	0.79	0.14	3.30

tion of protein in the body tissues, which in itself must lead to cardiac weakness.

In 1906, Jacob reported from the Lenhartz clinic fifty-seven cures upon fifty patients. The latter for *fifteen years* had been employing the treatment with excellent results *in chronic bronchitis and emphysema, in heart affections complicated with stasis* and even *with advanced decompensation, and to precede a reduction cure in the weakened heart conditions resulting from obesity.* With characteristic Teutonic thoroughness each of Jacob's patients received 200 c.c. of milk four times daily during four to eight (generally seven) consecutive days. After the first five to seven days, he added one egg at 10 A. M. and zwieback at 6 P. M.; then two eggs and some bread, and on the following day minced meat, vegetables, or rice, so that gradually, about twelve days after the beginning of the cure, his patients were upon an ordinary mixed diet. But for two to four weeks longer, the total amount of fluid taken during a day was still limited to 800 c.c. Absolute rest in bed was insisted upon until after the inauguration of the above mentioned additions to the milk diet; and even then great care and individualization were employed when the patient was first allowed to sit up, as well as after two weeks, when brief but gradually increasing exercises were permitted. According to him the cure is indicated both in chronic and in acute heart illness, but his most striking results were obtained when, in addition to cyanosis and dyspnea, marked edema and considerable collections of fluids in the serous sacs existed. The muscular weakness in the ordinary chronic valvular disease, he found, did not respond as well to the cure as that dependent upon an arteriosclerotic myocarditis. A successful issue presupposes a reasonably high pulse wave as well as a sufficient renal capacity to excrete water and salts, but a weak, scarcely palpable pulse requires the quicker aid of digitalis. Although an arteriosclerotic kidney may react to this diet, the cure is not indicated in the parenchymatous form. The essential effect of the diet plus the rest in bed is to diminish the work of the heart. Without taxing digestion or circulation, the bodily functions are for the time being preserved, even by the very small amount of nutriment contained in the diet. The effect of the cure is frequently marvelous, especially in so promptly relieving dyspnea. Diuresis begins slowly, reaches its height on the third or sometimes not until the fourth or fifth day, and for several days continues to exceed the amount of fluid ingested. The cause of the diuresis is attributed by different observers to its action upon the kidneys, by Romberg to its poverty in salt, and by Lenhartz chiefly to the reduction in the cardiac work and the improvement in the cardiac muscle. The only contraindications according to Jacob are: (1) Such extreme myocardial degeneration, whether from deficient nutrition, coronary sclerosis, or chronic inflammatory processes that no favoring influence is able to evoke a response, just as with the use of digitalis. (2) Where the abdominal circulation with a swollen liver and ascites is in the foreground of the disturbance. Here a calomel cure is more often effective. His[11] states that the most reasonable explanations of the action of the cure are: (1) The limitation of the fluid (Oertel); (2) the poverty in salt (Widal and Strauss); (3) the elimination of toxins (Huchard); (4) the antitoxic (against uremia), the mechanical, and the diminishing filling of the abdomen, the last depending upon the intimate correlation between heart action and abdominal pressure (Krauss). He also points out the fact that the valuable new contribution contained in this cure was not, as its author suggests, the milk itself, but its limited amount.

Jacob's essential modifications of the astute Russian's *cure de lait* are therefore: (1) The much greater and more prolonged restriction in the amount of liquid ingested; (2) the brevity of the absolute milk cure; (3) the complete rest in bed; and the subsequent detailed and individual care when the patient is first allowed to sit up and when exercise is first prescribed; (4) the more exact routine followed.

The four charts selected from Jacob's paper (1, 2, 3, and 4) well illustrate the effect of the diet upon four different types of relatively acute cardiac insufficiency:

Case 1. (Broken compensation, aortic and mitral insufficiency of rheumatic origin.) Maid, aged 30 years. December 5, 1901, to February 13, 1902. palpitation, dyspnea, oppression, weight, vertigo. Eight

* These figures are based upon those furnished by C. F. Langworthy's revised charts from the U. S. Department of Agriculture's Experimental Station.

CHART 1. CASE I.

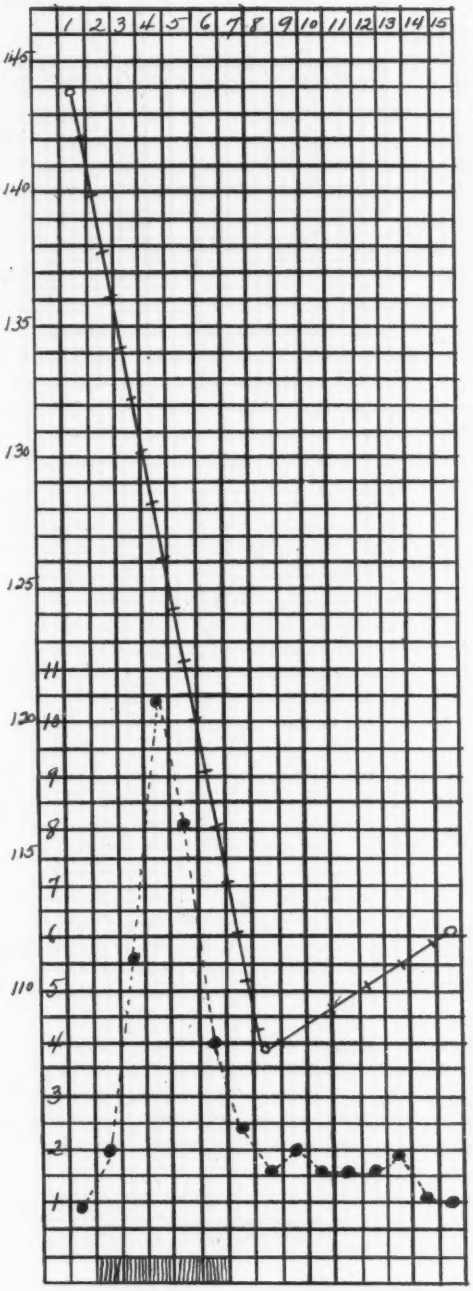
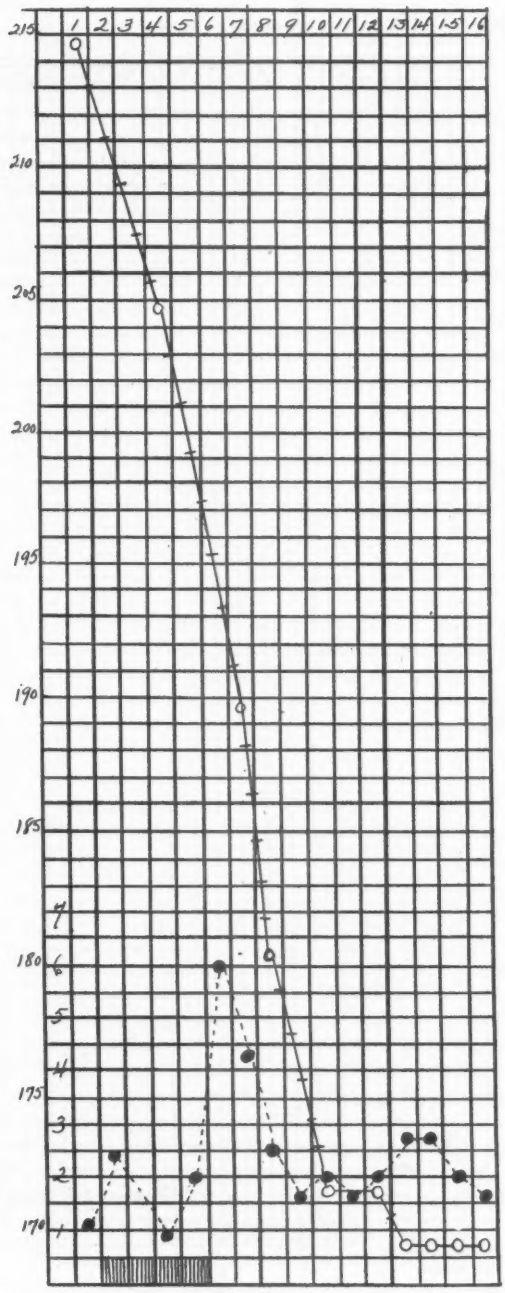


CHART 2. CASE II.

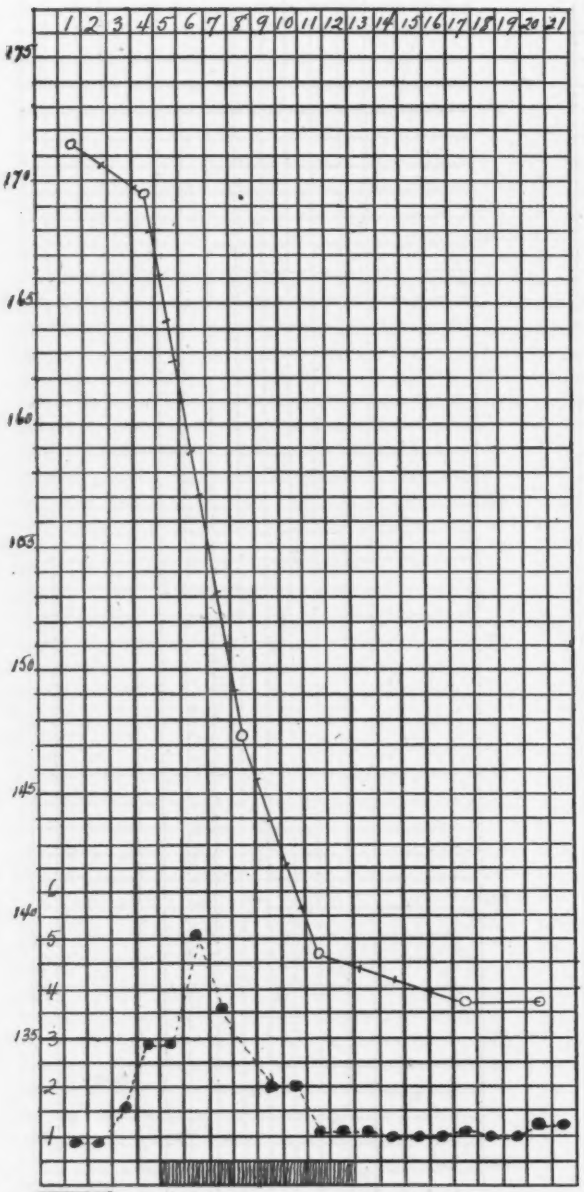


Karell diet (4 x 200 c. c. skimmed milk).

Urine curve: Each square represents one-half pint.

Weight curve: Each square represents one pound.

CHART 3. CASE III.



Karell Diet (4 x 200 c. c. skimmed milk).
Urine curve: Each square represents one-half pint.
Weight curve: Each square represents one-half pound.

CASE 4. CHART IV.

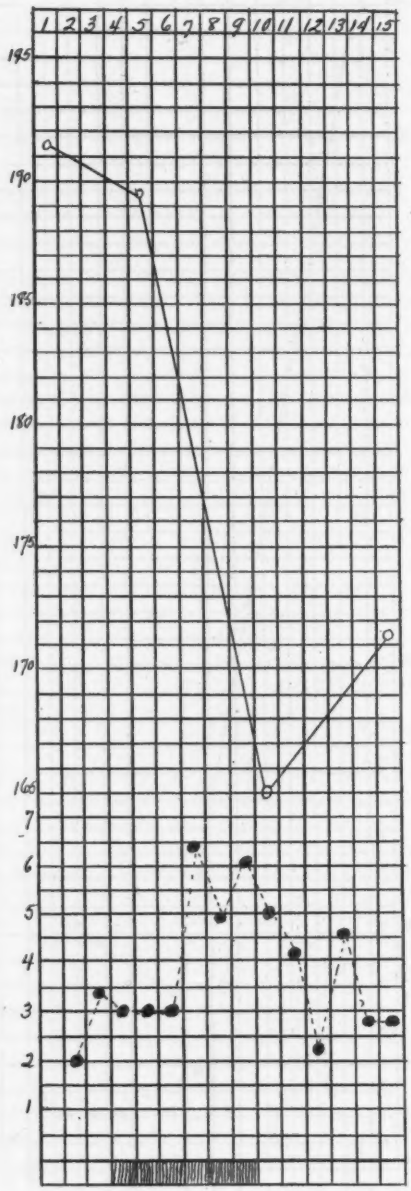
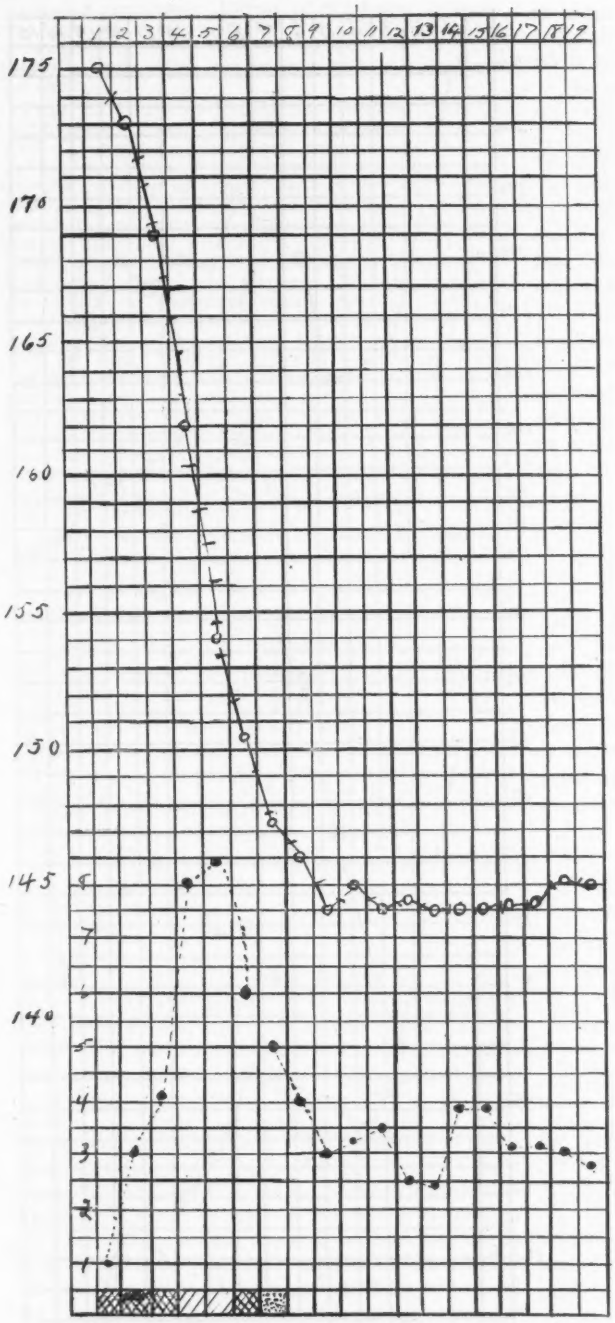


CHART 5. CASE V.



Modified Karell diet on first seven days.

First three days, 6 x 125 c. c. full milk—20 c. c. 30% cream; oatmeal or cereal, 3 x 1 ounce; lactose, 3 x 2 drams; water, 3 x 125 c. c. (with medicine).

Medication: Rochelle salts, ½ dram in the morning. Infusion digitalis, 2 drams, three times a day.

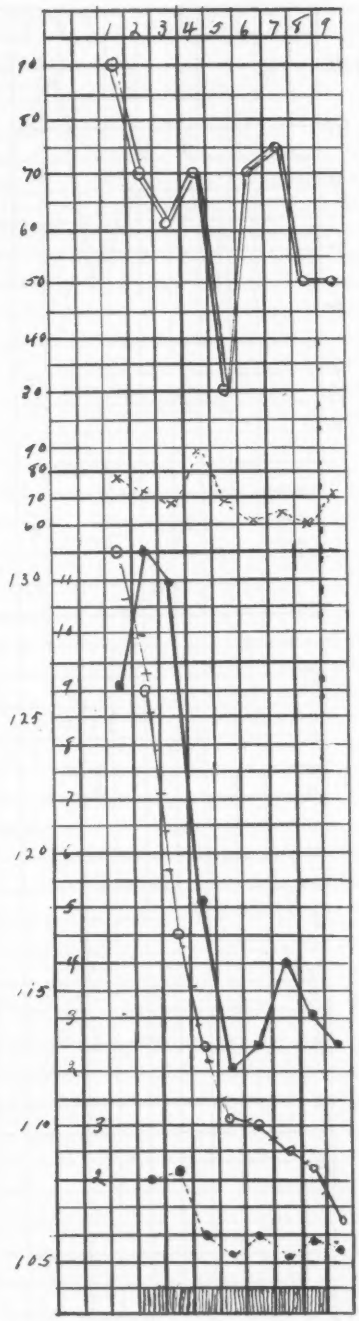
Fourth and fifth days, same as foregoing—black coffee, 100 c. c.; milk, 125 c. c.; oatmeal, 1 ounce.

Sixth day, same as foregoing—juice of one orange. Digitalis discontinued. Basham's mixture, half an ounce t. i. d.

Seventh day, same as foregoing—three slices of unsalted bread; three pats of unsalted butter.

Eighth day—mixed but salt-free diet.

CHART 6. CASE VI.



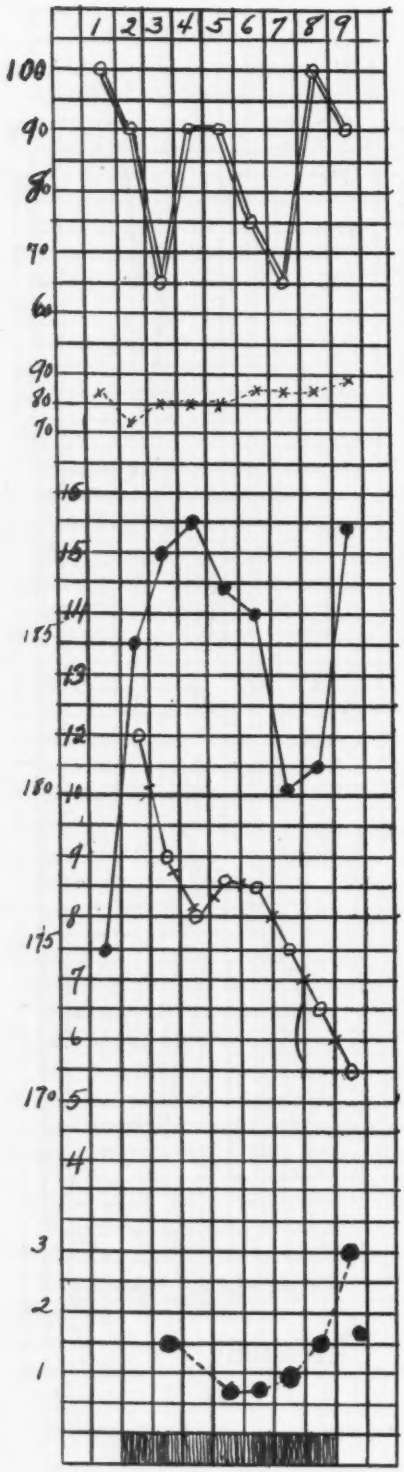
Karell diet 4 x 200 c. c. (about 2% fat); lactose one ounce.

Pulse pressure curve.

Pulse curve.

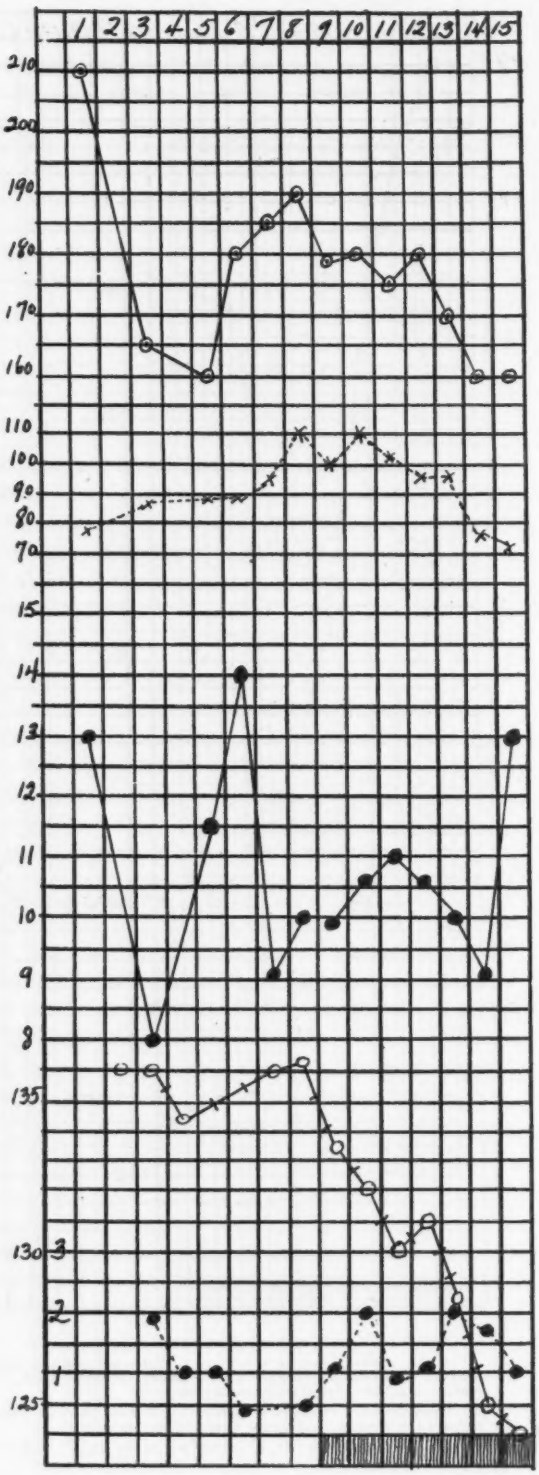
Pulse work curve (Arbeit estimated by Sahli's sphygmobolometer).

CHART 7. CASE VII.



Karell diet, 4 x 200 c. c. milk; lactose, 1 ounce.

CHART 8. CASE VIII.



Karell diet—lactose, 1 ounce.

Systolic pressure curve (not possible to estimate diastolic pressure).

days previous to admission marked increase in foregoing symptoms. Edema of the lower extremities, less of breast, general stasis, bronchitis, engorged liver, urine 300 c.c., specific gravity 1024, albumin, trace. Note the prompt and marked diuretic effect.

Case 2. (Arteriosclerosis, myocarditis, hydrops, emphysema.) Aged 65 years. December 4 to 29, 1907. Rheumatism fifteen and twenty years before, but no subsequent heart symptoms until past year. Dyspnea, feeling of oppression, swelling of the feet. During previous summer two courses of carbonic acid baths with transitory benefit. Since then persistent bronchitis. Recently effectively treated at home with digitalis. Marked general anasarca of legs, arms, chest, and scrotum. Almost immobile on account of **enormous edema,** cyanosis, restlessness, orthopnea, cough, bronchitis, emphysema, numerous rales, sticky purulent expectoration, respiration 40, rough systolic murmur over heart, especially at the base, weak, irregular pulse, thickened tortuous arteries, moderate ascites, tender liver, hand's breadth below costal margin, urine 600 c.c., specific gravity 1020, 1.5 per cent. albumin. Within two days of the beginning of the cure, dyspnea disappeared so that patient could remain in bed. All symptoms promptly improved. No albumin in urine after the thirteenth day.

Case 3. (Cardiac dilation and weakness, obesity.) Aged 20 years. October 6 to November 16, 1905. Always overweight. Beer and whiskey in excess for several years. Swollen legs, abdomen, and scrotum for three weeks. Obesity extreme, anasarca over entire body, pulse 130, engorgement of liver, urine 500 c.c. Ordinary diet with fluids limited to 1000 c.c. Digitalis one gram in three days without effect. The pulse remained frequent, small and scarcely palpable. Very slight diuresis. Striking diuretic effect of strict Karell cure.

Case 4. (Myocarditis with stasis.) Aged 29 years. March 29 to July 9, 1905. For six weeks, swelling of the legs and pains in the region of the stomach. Cyanosis, enlarged heart, faint tones, rapid feeble pulse, fluid in left pleura, engorgement of liver, ascites, edema of the legs and of the face, urine 1000 c.c., specific gravity 1022, albumin, trace. Three days before cure, patient received digitalis but without relief. Symptoms of stasis and dilatation of the heart disappeared after cure.

The very low nutritive value of Karell's diet is one factor and, according to Hirschfeld, the chief one, enabling the patient to undergo so decided a restriction in fluid over so long a period. If the strict limitation of the 4 x 200 c.c. is disregarded and extra nutrition is allowed, he warns that there is an imperative demand for more fluid. Without denying the theoretical basis, or even in the main the practical application of this objection to most modifications of the absolutely strict cure, I have recently endeavored to study at the bedside the effect of: (a) an increase in the caloric content of the diet without an appreciable increase in its bulk;* and (b) an augmentation of its diuretic action. A number of considerations have stimulated me thereto: (1) the increased appetite and improved digestion following some of the modifications as I have used them in private practice; (2) the apparently enhanced nutrition and strength of the *undernourished* patients I have so treated, especially at the end of the first week; (3) the reported effect of the cane sugar treatment advocated in England for heart disease; (4) my experience with von Noorden's modification of the old-fashioned milk diet in nephritis, viz., the partial substitution of cream to increase the nutritive value without materially adding to the bulk, and, (5) the diuretic effect of lactose.

The modifications I have employed are *one* or *more* of the following: (1) Full milk (unskimmed); (2) strengthening full milk still further by adding cream but without increasing the bulk; (3) adding lactose in gradually increasing amounts; (4) adding unsalted and very thoroughly cooked oatmeal in gradually increasing amounts, either to the milk itself as a gruel, or as a cereal upon which the milk with or without lactose is poured. With little or no increase in bulk and only by the addition of readily digested carbohydrates and cream, the caloric value can be increased as follows:

We have tried numerous other modifications of this diet and many radically different diets in cases of cardiac insufficiency similar to those cited above and below but have failed to produce the benefit almost invariably a result of the original and simplest form, viz.: four times two hundred cubic centimeters of skimmed milk. For example, in some cases where the nephritis element was prominent and where the non-protein nitrogen of the blood was high, we confined the intake of food to vegetables with a low percentage of carbohydrate. The effect was nil in the few patients who could be persuaded to take them, and thirst, indigestion, and other discomforts resulted. Fluid deprivation is evidently quite as important if not more so than food starvation; but the absolute rest in bed must be reckoned a very essential factor.

Case 5. Male, aged 55 years, in whom toward the end of the winter, a gradually accumulating edema, ascites, and right hydrothorax had assumed such proportions as to produce alarming nocturnal orthopnea with Cheyne-Stokes respiration. His pulse was rapid, small, and irregular; blood pressure 200/150, the heart dullness reached to the mid-axillary line; there was a gallop rhythm; and his urine showed a heavy cloud of albumin and a very large number of all kinds of casts. Upon two drams of the infusion of digitalis and the diet indicated on Chart No. 5, his subjective symptoms ceased within forty-eight hours, his heart contracted several centimetres, and the gallop rhythm soon disappeared. Within the limit of my personal observations his improvement and the disappearance of edema in proportion to his usual weight and height was the most rapid and satisfactory that I have witnessed, and that despite the practical impossibility of keeping him in bed or even confined to one room. In eight days he dropped thirty-one pounds or one-fifth of his normal weight.

Case 6. (Arteriosclerosis, dilated hypertrophied heart, chronic bronchitis and emphysema, chronic nephritis.) Aged 63 years. At City or Bellevue Hospital from February 15th until May 15th. Dyspnea, cough, edema, frequent urination at night. Marked general arteriosclerosis, moderate gravity edema, extreme malnutrition, liver enlarged to umbilicus, both chests full of sonorous and sibilant rales, apex outside of mammillary line, rough systolic murmur heard at apex and base, A^2+++, metallic. Remained in bed and received Karell diet, augmented by one ounce lactose and no other food, liquid, or medicine. Marked subjective improvement. Gradual disappearance of edema. Decided lessening of cough and rales. Loss of weight, but without a corresponding increase in amount of urine. The

* Evidently such additions are not indicated in the obese or in patients who without edema are overweight.

lack of correspondence may have been due to carelessness in the collection of the specimen.*

Case 7. (Arteriosclerosis, dilated hypertrophied heart, aortic, mitral, and tricuspid insufficiency, luetic and alcoholic.) Pronounced stasis, pulmonary edema, hydrops, considerable ascites, engorged and pulsating liver, marked and persistent edema of legs, thighs, scrotum, and trunk, emphysema, cyanosis, cough, pronounced dyspnea, at times paroxysmal. Wassermann positive. One week at Bellevue Hospital, treated there by tonics, digitalis, and potassium iodide, at City Hospital by salts and digitalis from April 9th to 26th, but without benefit. Karell diet with addition of one ounce of lactose but no medicine, other liquid or food from May 11th. Prompt and decided improvement in subjective symptoms, loss in weight, lessening of edema and ascites, but without corresponding increase in urine (perhaps due to faulty collection of urine).*

Case 8. Male, aged 46. Luetic endocarditis, aortic and mitral insufficiency, dilated aortic arch, hypertrophied and dilated heart, decompensation, extensive gravity edema, slight ascites, moderately engorged liver, chronic nephritis. Chancre fifteen years old, treated only locally; "rheumatism" fourteen years ago; "malaria" four years ago. For about three weeks dyspnea on exertion and even in recumbent posture, swollen feet and legs, precordial pain, marked nocturnal dyspnea. Wassermann positive. In Bellevue Hospital one week; treatment daily injections of mercury; City Hospital, April 29th; treatment, house diet, salts, fluids limited to 1000 c.c., salicylate of mercury, grain i (intramuscular), May 6th. Preliminary improvement for three days, then symptoms exaggerated and urine decreased in amount. Mercury repeated, May 10th, further decrease in urine output and subjective symptoms decidedly worse. Karell diet plus one ounce of lactose, May 12th. Gradual subjective improvement, prompt loss of weight, disappearance of ascites and edema, slight and variable diuresis, slowing of pulse, fall of systolic pressure and fall of pulse work.†

CONCLUSIONS.

1. In many cases quite as prompt and efficient diuresis, loss of weight, disappearance of edema, and marvelous subjective improvement can be obtained with such modifications in the diet suggested above as in following Jacob's strict Karell Cure.

2. These modifications, if carefully adjusted to the individual taste, digestion, and condition, do not disturb but rather aid the digestion. They also enable the physician to carry out, even in private practice, an excellent diet for the purpose in hand without arousing too great opposition.

3. They permit a slower and more agreeable transition to a normal diet; as well as

4. An opportunity to continue such a diet a longer period or practically to renew it from time to time and that, too, more or less indefinitely whenever an increase of weight or of edema or a recurrence of dyspnea warns the physician of its expediency.

5. This diet plus the rest entailed affords a valuable introduction to any reduction cure.

6. The Karell Cure is probably an element of safety and certainly an excellent prelude to modern vigorous antisyphilitic treatment in patients with cardiovascular disorders dependent upon a luetic basis, when decompensated and especially when accompanied by edema.

7. Finally, Doctor Ordway's careful studies of the pulse pressure and of the pulse work (by Sahli's sphygmobolometer) upon the cases observed by us upon the Karell Cure or one of its modifications, show quite convincingly that one essential feature (if not the most important) is the almost invariably resulting decrease in the work of the heart as was emphasized by Lenhartz. In most instances the first addition to the diet produces an immediate increase in the cardiac work, as is well shown in the last estimation of pulse pressure and work in Charts 7 and 8 when the diet had been augmented only by one egg.

References.

1. Deutsche Klinik, iv, 2, 1907, p. 376.
2. Allbutt: Practical Treatment, Musser and Kelly, ii, 1911, p. 118.
3. Idem: Ibidem, p. 120.
4. Deutsche Klinik, iv, 2, 1907, p. 376.
5. P. Karell: St. Petersburger med. Zeitschr., viii, p. 193, 865; De la cure de lait, Archiv. gen. de med., ii, p. 513, Nov., 1866.
6. Winternitz: Ueber methodische Milch und Diät Kuren, Wiener med. Presse, 1870, p. 5, 49, etc.
7. Hirschfeld, F.: Zur diatetischen Behandlung von Herzkrankheiten, Berl. klin. Woch., 11, March 14, 1892, p. 241.
8. Idem: Ueber die Ernahrung des Herzkranken, Ibidem, 33, 1896, p. 734.
9. W. His: Therapeutische Monatschr., xxvi, Jan. 1912, p. 10.
10. Jacob, L.: Ueber die Bedeutung der Karell Kur, Mitteil., aus den Hamburger Staats Krankenanstalten, viii, 1908. Ueber die Bedeutung der Karellkur bei der Beseitigung schwerer Kreislaufstorung und der Behandlung der Fettsucht, Münsch med. woch, April 21, 1908, 16, p. 839; 17, p. 912 (284).
11. His: Loco citato.

* Patient was discharged in June, much improved; but his weight had gradually mounted to 132½ pounds. No further attempts at a Karell diet or any modification of it were made after cessation of writer's service, June 1st.

* His improvement continued for about one month after the Karell diet (Chart No. 7). From then his weight gradually began to increase with corresponding evidence of augmenting anasarca and of decompensation. More recently under caffeine citrate these symptoms diminished. No further Karell diet has been administered since cessation of writer's service, June 1st.

† Following the period of Karell diet (Chart No. 8) this patient's improvement increased for a brief period and then persisted until about June 20th, when he began to fail rapidly with gradually increasing anasarca and oliguria. After the cessation of the writer's service, June 1st, none of the later attempts at prescribing diet was of assistance. His systolic blood pressure varied from 180 to 150 and his weight was 148½ pounds! on June 26th, the day before he died. The autopsy confirmed the clinical diagnosis and also disclosed edema of the lungs, hypostatic pneumonia, atheroma of the coronary arteries, and a beginning perilobular cirrhosis of the liver plus the congestion noted above.

PITFALLS IN THE DIAGNOSIS AND TREATMENT OF SENILE HYPERTROPHY OF THE PROSTATE. ITS CONSIDERATION FROM THE GENERAL PRACTITIONER'S STANDPOINT.

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Because of an insufficiency of time, experience and instruments, the correct diagnosis and palliative treatment of enlarged prostate by the busy general practitioner, is often unsatisfactory. In any hospital service where large numbers of this particular class of cases present themselves for relief, this fact is repeatedly brought to the attention of the urologist. These patients are poor prospective subjects for operation when they arrive at the hospital and they occasionally die before much can be done for them. Not infrequently such a case has been incorrectly diagnosed and occasionally presents a urethra traumatized by the unskillful introduction of catheters, or a bladder atonic, from continued urinary retention with a resultant kidney insufficiency which requires weeks or even months of treatment before

the case becomes an eligible surgical risk. Sometimes such a case is in a semi-comatose condition, as illustrated by the following history:

Mr. J. C., age 82. Family physician omitted final instructions before leaving for a vacation. Patient semi-comatose at intervals for forty-eight hours. Continual dribbling and overflow of urine for one week. Tongue coated, breath bad and marked general weakness.

Examination: Revealed a fairly well nourished individual with a urinary retention of 500 C.C., of bloody purulent urine. Blood pressure, 180.

Treatment: With attention to continuous bladder drainage, functional activity of the kidneys, bowels, and skin, a little general tonic, fresh air and sunshine, this individual was able to walk out of doors within two weeks. He was operated upon a few days later and able to leave the hospital on the tenth day. This would not have been possible had he not been properly prepared physically and mentally previous to entering the hospital. During this preliminary preparation such patients gain confidence in themselves and their physician which is a valuable contribution to post-operative convalescence.

Every case of frequency, dribbling, incontinence, urinary hesitancy, dysuria or hematuria, cannot be considered prostatic in origin. Very often these symptoms call for a careful general examination in addition to urinary findings. After complete rectal, urethroscopic, and cystoscopic examination, some cases will tax the diagnostic ability of the urologist and leave him with a rather vague idea of the true etiology. Explanations to the anxious patient and relatives regarding an operation in which little or no prostatic tissue was removed, might embarrass the attending physician and it behooves him to be quite positive of his findings before resorting to surgery.

Dribbling, urinary hesitancy or frequency, may be due to strictures, contracture of the vesical neck, diverticulae of the bladder or a trabeculated, and markedly contracted bladder. These generally are accompanied by cystitis which aggravates the condition. Cases of this nature have been admitted to the hospital with a diagnosis of nephritis because of pus in the urine. A case of this nature is under observation at the present time. What the man really has is a pus kidney on the right side.

Dysuria, pyuria or hematuria may be due to growths, calculi, or bacterial infection located anywhere along the urinary tract from the kidney to the external urethral orifice. Imperious urination, diurnal or nocturnal incontinence may be due to some pathologic condition in the urethra or spinal cord. An example of the latter condition may be had from the following history:

Mr. J. L.: Referred as a prospective candidate for prostatectomy. The routine examination of the bladder and rectum failed to reveal any signs of enlargement of the prostate. Patient a widower, age 45. For two years imperious urination, occasional dribbling and bed wetting. The latter symptom troubled him very much. During this period it had been impossible for him to be away from home nights because of this embarrassing symptom.

Examination: Slight diplopia. Drooping left upper eyelid with impaired vision. Pupils unequal, right one pin point. Loss of light reflex. Romberg slight.

Past History: Slightly ulcerated condition of the inner leaf of the prepuce twenty-eight years ago. Apparently a tentative diagnosis of lues but less than three months' treatment. Feeling well and not being advised to the contrary he was married two years later. His wife's first two pregnancies resulted in miscarriages with the customary routine. Third child lived eighteen months. Wife died two and one-half years later with general paresis. In 1910 someone advised him to have a Wassermann test, which proved positive. At that time he received two injections of salvarsan, and being told this was sufficient treatment he gave the matter no further attention.

In this case the little extra time given to history and examination proved to be time well spent. This particular patient has received the routine treatment so favorably reported by Dr. B. C. Corbus of Chicago, i. e., several intravenous injections of salvarsan, followed by spinal puncture and the withdrawal of a definite amount of spinal fluid,—following which the patient is placed in the Trendelenberg position for several hours,—the theory being that this will encourage the passage of salvarsan into the subarachnoid space in sufficient quantities to kill the spirochetes. To date this case has greatly improved.

DIAGNOSTIC SUMMARY.

Very briefly I would say that the best single cardinal symptom upon which the general practitioner may clinch his diagnosis is the retention of urine in any amount over three ounces. Next in importance comes his rectal findings. Unfortunately, however, rectal findings are occasionally quite deceptive because nearly all of the obstructing portion of the prostate is intravesical and only a careful cystoscopic examination will reveal this fact. In my opinion, routine cystoscopic examination is very advantageous but should not be undertaken if certain contra-indications are present, i. e., extreme general weakness, high fever, or cardiac complications. Cases in which the above mentioned diagnostic routine has been omitted, are sometimes erroneously treated for high blood pressure, nephritis, dyspepsia, colitis or any one of the symptoms generally accompanying prostatic obstruction.

PALLIATIVE PROSTATIC TREATMENT.

Many of these patients for one or several reasons cannot be operated upon immediately and the physician must decide upon some procedure that will give relief. He must first prove to the family that he knows what he is talking about before they will listen to any operative suggestion. The patient's chief argument and that of his relatives and friends is that he is not in physical condition for operation and this is generally correct.

Usually when the physician first sees these cases they are suffering considerable pain and discomfort. It is advisable to relieve them as soon as possible and before an examination is attempted. This is best accomplished by the use of morphine either in the form of rectal suppositories or hypodermic.

Following the examination the patient should have his retention relieved, a brief bladder lavage and a permanent catheter should be left in the bladder provided this does not cause pain and discomfort. If the patient cannot tolerate a permanent catheter he should be catheterized at intervals, the frequency of which to depend on the amount of retention,—usually four to six times in twenty-four hours.

Selection of proper urethral instruments is very important. The less urethral trauma the less likelihood of urethral chills and fever.

A soft rubber catheter should be the first selection and should this not pass, a specific prostatic tip, wax catheter should be used. No time should be lost with slow acting cathartics. Many patients have considerable gastric disturbance and any drug by mouth may increase rather than decrease their troubles. A carefully given enema morning and night for the first twenty-four or forty-eight hours will often give quicker and better results.

Following this the patient is advised to use any good cathartic that he may be in the habit of taking. He should be instructed to drink freely of water to promote renal activity. Many of these cases have used tobacco in some form for many years and derive considerable contentment from its use. It is best to allow them to continue with moderation.

Under this regime, general disturbances of gastric, cardiac, renal or circulatory origin will adjust themselves without drugs; however urotropin as a urinary antiseptic and some form of general tonic are often desirable after gastric disturbances, which may have been present, have disappeared. What these cases most desire is rest, increased strength and relief from pain. When this has been accomplished they will have developed confidence in their physician and will listen to his explanation of their condition. Being convinced of the probability of repeated attacks of longer duration and greater severity, if not operated upon, they will gladly consent to surgery while strong and able to withstand it.

It is frequently true that cases improve so rapidly under the above treatment and feel so well that they refuse further attention. The physician need have no fear, for such a patient will call him during the next attack, remembering how quickly he was previously relieved. It repeatedly comes to the attention of the urologist that many of the cases have been advised against operation because of advanced age, or impaired general strength. As to their strength, practically all cases can be put in condition for operation and as for age, none are too old. I have one case at present, operated upon two years ago, who is now in his ninety-sixth year. Failure to succeed with this class of cases may generally be attributed to the abuse rather than the use of the above rules.

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ABDOMINAL CESARIAN SECTION: INDICATIONS AND TECHNIQUE.

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There is no surgical operation in which is shown more clearly the triumphs of modern surgical technique, than in abdominal cesarian section, or celiohysterotomy. Prior to the beginning of the sixteenth century there is no authentic history showing that the operation was performed on the living woman. From this time until the development of the Porro operation in 1876, a comparatively large number of cesarian sections were performed, with a maternal mortality varying from 50 per cent. to 100 per cent. It is interesting to note that throughout this period, in the performance of the operation there was no attempt made to control hemorrhage, and while the use of sutures had been advocated by Lebas in 1769, their routine use was not adopted until the development of the Sanger operation. In 1876, Porro, in order to lower the frightful mortality resulting from hemorrhage and infection, advised the removal of the body of the uterus and suturing the stump into the lower angle of the abdominal wound. This modification had the effect of preventing leakage of the lochia into the peritoneal cavity, and reduced the mortality to less than 25 per cent.

It was left to Sanger, however, to develop a technique which would do away with the removal of the uterus, and would further lower the maternal mortality following the operation. The essential feature of the operation described by Sanger in 1882 was the accurate coaptation of the uterine wound by means of sutures. With this modification, the mortality has gradually dropped, until at present, in clean cases, it will probably average from 2 to 3 per cent.

In the early days of the Sanger operation, the indications were very strictly drawn, and were usually limited to contracted pelves, or to pelvic tumors which rendered delivery of a living child through the parturient canal impossible. As the mortality due to the operation began to decrease, there was at first a gradual, and later a very rapid increase in the number of operations performed. This increase was due to several factors, among which may be mentioned the decrease in mortality, the spectacular nature of the operation, the popularization of major surgery, and unfortunately, but nevertheless true, the desire for larger fees in obstetrical work. There has necessarily been a pronounced change in the accepted indications, as the operation has become more popular, and we note that from pelvic deformity as the sole indication for cesarian section, several recent writers have broadened the indications to include every known obstetrical complication. In fact, some apparently well meaning obstetricians (?) have earnestly advocated the operation in women "with unfit nervous systems," to spare them the pain of normal labor. The results of the present furor will in all probability not be known, since the vast majority of sections which are being performed at present, are not reported. It seems safe to venture, however, that the end results in a very large percentage of these cases, as in any other abdominal operation done without proper indication, will be very poor.

In the thirty-six years since Sanger described his operation, thousands or sections have been performed, and from the published results it would seem possible to work out certain indications and contraindications for the operation. From observation I am inclined to believe that the poor judgment often seen in the selection of cases is more frequently due to lack of knowledge regarding the contraindications to the operation, than to any other factor.

INDICATIONS.

In considering the indications for cesarian sec-

tion I believe that the mistake is too often made, of not individualizing the case. Thus there are those who say that every dystochia due to pelvic deformity is a proper indication for cesarian section, and others who consider placenta previa as always an indication. This reasoning is utterly unscientific and gives poor surgical results. Cesarian section is only indicated, in any given case, if this operation will give a lower maternal and fetal mortality, and an equal or decreased morbidity, than other methods of delivery.

Maternal mortality.—The mortality of the modern operation, if performed on a clean case, in a modern hospital, should average 2 per cent to 3 per cent. This mortality is rapidly increased to 50 per cent. or over, if the operation is done on infected cases; cases which have been subjected to a long labor; those in which repeated vaginal examinations have been made; cases on whom attempts have been made to deliver, per vagina; cases in which the membranes have been ruptured for many hours, and in certain other cases which I will consider in the discussion of "Contraindications."

Fetal mortality.—Unquestionably, no other means of delivery offers such good results, so far as the infant is concerned. If the child is in good condition at the beginning of the operation—and a cesarian section is rarely indicated unless this is so—practically 100 per cent. of the babies should be delivered alive. The infant mortality during the first year is lower in babies delivered by cesarian section, than in those delivered by other operative means.

Maternal morbidity.—This phase is rarely considered in the selection of a method of delivery. If cesarian section is performed upon properly selected cases, under proper conditions, there is a rapid recovery, involution of the uterus is good, and the patient, if a primipara, is left with a good pelvic diaphragm and normal pelvic organs. On the other hand, we have all, at some time in our professional life, had reason to regret having performed a high forceps, or a version, which was difficult, convalescence was tedious, and the ultimate result of which was an additional patient for the gynecologist. It is just such cases that make true the saying that the gynecologist lives on the mistakes of the obstetrician. In clean cases, my cesarian sections have made more rapid recoveries, and have been in better condition afterward, than cases delivered vaginally by difficult forceps operations, or versions.

If cesarian section is performed indiscriminately, on the other hand, while the patient may not die, she will almost surely become infected, her low grade pelvic infection will result in adhesions, and these and other sequelae will likely make of her a chronic invalid, unless pelvic surgery gives some relief.

Fetal morbidity.—Babies delivered by cesarian section are usually normal, healthy babies, uninjured by the operation of delivery. We are all familiar with the results of difficult deliveries by forceps, or version and extraction. The frequency of injuries to the brain, as a result of these instrumental deliveries, is only recently receiving the attention which it deserves. Many of these babies are delivered alive, apparently in good condition, but a large percentage die within a few days, often as a result of a cerebral hemorrhage. It has been suggested, but has not been proven, that many of the mentally unfit are so as a result of such injuries to the brain. It is certain that many permanent nerve injuries, fractures of the skull and extremities, and many deformities, can be attributed to difficult deliveries through the natural passages.

Remote effects to be considered.—The most important remote effect as a result of cesarian section, is the possibility of the rupture of the uterus in a future pregnancy or labor. This is a real danger. While it is claimed by some investigators that only about 2 per cent. of all cases rupture in future labors, if allowed to deliver spontaneously, yet from observation I believe that this figure is grossly underestimated. Other observers have attempted to classify the cases as those in which the puerperium was febrile, and the remainder as non-febrile, attempting to draw the conclusion that if the convalescence was non-febrile, it must necessarily follow that the uterine incision healed by first intention, and a firm scar resulted. This is a fallacy. There is no positive assurance of obtaining perfect wound healing, regardless of either the nature of the puerperium, or the method of suturing. The uterine scar is an unknown factor in all cases. From a careful consideration of the literature and personal observation of several cases of ruptured uterus following cesarian section, I am convinced that the dictum, "Once a cesarian, always a cesarian," rests upon sound reasoning and represents good obstetrical judgment. An exception might be made in the case of a multipara, where the section was not done for disproportion, and in whom dilatation was proceeding rapidly, but even in such cases it is better to save the uterine muscle from all unnecessary strain by applying forceps after dilatation is complete. The probability of a future cesarian section, with its pre-requisites, hospital environment and capable attendants, must be considered in deciding upon the operation in any given case.

I. OBSTRUCTION TO LABOR.

Contracted pelves.—This will always be the chief indication for cesarian section. *If the true conjugate is less than 6 centimeters,* no problem exists, since it is impossible to extract even the mutilated fetus through such a small pelvis, without causing grave and perhaps fatal injuries to the mother. *If the true conjugate is less than 7½ centimeters,* the case is still easy to dispose of, either craniotomy or cesarian section being indicated, depending upon the condition of mother and child. A normal sized baby cannot be delivered through a pelvis of this size. It is in those pelves having *a true conjugate of more than 7½ centimeters,* that our greatest problems arise. These are the so-called border-line cases. It is generally recognized that from 70 to 80 per cent. of contracted pelves, including those in which radical interference is indicated, will permit spontaneous delivery of the case, if treated expectantly. I

therefore believe that all cases coming within this classification, if this is the first labor, should be given the test of labor, rigidly preserving the conditions for cesarian section, should an indication arise. If after a reasonable trial, the head is still above the inlet, with no progress, I prefer cesarian section to its competing operations, forceps or version and extraction. On the other hand, if the case has been neglected, the patient repeatedly examined, attempts made to deliver vaginally, and so forth, cesarian section would be strictly contra-indicated.

Pelvic tumors.—A word of caution regarding this indication is advisable. While it is true that as a rule pregnancy stimulates the growth of most pelvic tumors, it is equally true that there is a marked tendency towards the elevation of the tumor out of the pelvis. Thus it is often noted, particularly in fibroids, which at the beginning of the pregnancy may be situated low in the pelvis, threatening marked obstruction to delivery, at term are frequently found lying above the brim, and causing no marked effect upon labor. If cesarian section is indicated, it is usually best to do a Porro operation, if a fibroid uterus is responsible for the obstruction.

Stenosis of the cervix or vagina.—By this I do not mean the ordinary rigid cervix often found in primiparae, but rather a cervix which, usually as a result of previous lacerations, is mainly composed of scar tissue. Scar tissue will not dilate, but will tear. If artificial dilatation is required, the danger of extension of lacerations is pronounced, and fatal hemorrhage may take place. I believe that there are cases in which, after several trials, a previous laceration into the rectum has been successfully repaired, an elective cesarian section may be indicated in order to prevent a repetition of the disaster.

Ventral suspension and fixation of the uterus.—We are still observing the effects resulting from the many ventral fixations performed several years ago. Although it was at first believed that the so-called ventral suspension would not interfere with pregnancy and labor, subsequent observation has shown that serious dystochia may result from any operation in which the mobility of the uterus is interfered with. On account of the marked posterior displacement of the cervix in these cases, thus rendering manual dilatation very difficult or impossible, and also on account of the danger of a possible rupture of the uterus, cesarian section is to be thought of.

Relatively large fetus.—It must always be borne in mind that a disproportion may exist even though the pelvic measurements are normal, and that a cesarian section may be indicated under these conditions. None of the methods for the estimation of the relative size of the head as compared with the pelvic inlet are entirely satisfactory, and for this reason I prefer the test of labor as an index as to whether or not the case may be terminated per vias naturales, or by cesarian section.

II. HEMORRHAGE, ANTE-PARTUM OR INTRA-PARTUM.

Placenta previa.—In partial placenta previa, control of the hemorrhage by the insertion of a metreurynter, or by a Braxton-Hicks version, gives very satisfactory results so far as the mothers are concerned, and a fairly low fetal mortality. In central placenta previa, on the other hand, from 50 per cent. to 100 per cent. of the infants are lost, and about 10 per cent. of the mothers, if delivery is attempted per vagina. I do not wish to infer that every case of central placenta previa should be delivered by cesarian section. In private practice, without the hospital environment, Braxton-Hicks version, or the introduction of a Voorhees bag, are to be preferred. Under proper conditions, if the operation is done after the first hemorrhage, and not after the patient is exsanguinated, cesarian section should give not more than a 5 per cent. maternal mortality, and less than 5 per cent. fetal mortality. The danger of extensive lacerations, with fatal hemorrhage days after delivery, should not be lost sight of in cases delivered vaginally. To recapitulate, an indication for cesarian section will arise in central placenta previa, with the patient at full term and in good condition, child living, and hospital environment available. The requirement that the cervix be undilated and rigid, as proposed by some authors, seems unnecessary, since we practically never see a well-dilated cervix in central placenta previa, with the patient in good condition.

Premature separation of the placenta.—In this complication, unless the separation is slight, there is usually an urgent indication to deliver. The child is usually dead, or dying. If the hemorrhage is severe, the mother's condition growing worse, and the cervix undilated and rigid to such an extent that it would prove a bar to rapid delivery from below, cesarian section is indicated. In those cases which are seen early, and in which the child is not yet dead, cesarian section offers practically the only chance of delivering a living child.

III. PRE-ECLAMPTIC TOXEMIA, AND ECLAMPSIA.

There has recently been some agitation in favor of performing cesarian section in certain cases of pre-eclamptic toxemia. While it is true that if the toxemia does not clear up under treatment, there is grave danger that permanent degenerative changes in the kidneys and liver are likely to result, yet in the majority of such cases labor can be so satisfactorily induced by the introduction of a bag, that I have as a rule followed this procedure. There are rare cases, however, with very high blood pressure, amaurosis, epigastric pain, and suppression of urine, in which a rapidly performed cesarian section will give vastly better results than induction of labor.

It has been said that eclamptics do poorly after abdominal cesarian section, but our results have not borne this out. I do not believe that eclampsia, per se, is an indication for cesarian section, but I do believe that every eclamptic should be delivered at once, in the manner which will subject the patient to the shortest anesthetic, the least shock, will reduce trauma and lacerations to a minimum, and will give the best results to both mother and child. The children of eclamptic mothers tolerate delivery by forceps or

TABLE OF AUTHOR'S CASES.

Case No	Previous Labors		Indications	Length of This Labor	Number of Vaginal Examinations	End Result Mother	Infant
1	0		Eclampsia. Rigid, long cervix	0	1	Good	Good
2	0		Generally contracted pelvis	24 hours	1	Good	Good
3	0		Central placenta previa.	0	2	Good	Good
4	4	All normal	Central placenta previa, rigid, scar-tissue cervix	2 hours	2	Good	Stillborn
5	0		Severe pre-eclamptic toxemia	0	1	Good	Good
6	1	High forceps	Generally contracted pelvis; central placenta previa	4 hours	2	Good	Good
7	3	Each was 3 or 4 days in length, & forceps	Previous obstetrical history; sterilization	6 hours	0	Good	Good
8	0		Generally contracted pelvis	12 hours	0	Good	Good
9	0		Flat pelvis	24 hours	2	Good	Good
10	4	Three breech, one forceps, all stillborn	Previous history (masculine pelvis)	0	0	Good	Good
11	0	Chondrodystrophic	Chondrodystrophic dwarf pelvis	0	0	Good	Good
12	1	High forceps	Stenosis of cervix (scar tissue)	14 hours	0	Good	Stillborn (Premature)
13	1	Forceps; stillborn	Old third degree laceration, repaired after three operations	0	0	Good	Good
14	2	One forceps; one Caesarean section	Previous Caesarean section (Case 13)	0	0	Good	Good
15	0		Eclampsia at 6½ mos.; rigid, long, cervix; neglected case	?	0	Good	Stillborn (Premature)
16	1	Caesarean section	Previous Caesarean Sec. (Case 15)	0	0	Good	Good
17	1	Forceps	Central placenta previa	0	1	Good	Good
18	0		Masculine pelvis	24 hours	2	Good	Good
19	1	Forceps; stillborn	Generally contracted pelvis	12 hours	1	Good	Good
20	1	Spontaneous	Disproportion; flat rachitic pelvis	12 hours	2	Good	Good
21	0		Eclampsia; generally contracted pelvis	0	1	Good	Good
22	1	Caesarean section	Previous Caesarean Sec. (Case 21)	0	0	Good	Good
23	0		Disproportion; hard labor with no engagement	18 hours	1	Good	Good
24	1	Caesarean section	Previous Caesarean Sec. (Case 23)	0	0	Good	Good
25	0		Disproportion; hard labor especial desire for living child	36 hours	3	Died	Good
26	1	High forceps; stillborn	Flat rachitic pelvis	12 hours	1	Acute dil. stomach Good	Good
27	0		Ventral fixation	18 hours	1	Good	Good
28	0		Flat rachitic pelvis	36 hours	4	Good	Good
29	0		Eclampsia at 7 months; rigid, long cervix	0	1	Good	Good
30	1	Low forceps	Absolute obstruction due to fibroid of vagina	6 hours	2	Good	Good
31	1	Five months; sepsis	Generally contracted pelvis; vaginal fistula fol. sepsis	0	0	Good	Good
32	0		Central placenta previa	0	1	Good	Good
33	0		Scolio-rachitic dwarf	0	0	Good	Good
34	0		Illegitimate pregnancy; moron; for sterilization	0	0	Good	Good
35	0		Generally contracted pelvis. No engagement	18 hours	1	Slow Phlegmasia	Good
36	1	History denied	Absolute obstruction due to 7-pound uterine fibroid	6 hours	1	Died Peritonitis	Good
37	0		High assimilation pelvis; no engagement	24 hours	2	Good	Good
38	0		Masculine pelvis; no engagement	24 hours	3	Good	Good
39	0		Generally contracted, funnel-shaped pelvis	6 hours	0	Good	Good
40	0		Premature separation of placenta, 8 months	0	0	Good	Good
41	1	Forceps; stillborn	Traumatic anomaly of sacrum preventing engagement	12 hours	1	Good	Good
42	0		Flat, generally contracted pelvis; face presenting	34 hours	? Many	Good	Good
43	1	Forceps; stillborn	Funnel-shaped pelvis	12 hours	1	Good	Good
44	0		Eclampsia; 7½ mos.; rigid, long cervix	0	2	Good	Died in 3 days neglect
45	2	One forceps; one Caesarean, reason ?	Previous Caesarean section; tenderness over uterus	6	0	Good	Good

version very badly. If the patient is in labor, the cervix soft and dilated or dilatable, and the pelvis is normal, a manual dilatation followed by version or forceps will frequently give satisfactory results. In the presence of a rigid, non-dilated and non-effaced cervix, particularly in a primipara, I believe that superior results will follow the abdominal operation.

CONTRAINDICATIONS AND CONDITIONS.

Cesarian section is a primary operation, never a secondary one. It should not be attempted upon cases in which operative interference by forceps, version or induction of labor, have been attempted. In such cases the mortality will vary between 10 per cent. and 50 per cent. Frequent vaginal examinations, especially by an attendant whose technique is questionable, raise the mortality of the operation. This is especially true of cases in which the membranes have been ruptured for some time prior to operation. Slemons observed that whenever the membranes ruptured prematurely, and the labor is prolonged, especially if repeated vaginal examinations are made, infection of the uterine cavity is likely to occur. I do not believe that one or two vaginal examinations, if sterile gloves are used, and the patient properly prepared for the examination, contraindicate a section. I do believe, however, that every case in labor should be considered as a possible cesarian section, and by the substitution of external and rectal examinations for vaginals, the danger of infection reduced. Prolonged labor is a contraindication to cesarian section. This is particularly true if the patient shows evidence of infection, or exhaustion—i. e., an elevation of temperature and pulse. The child should be alive, except in cases of absolute contraction of the pelvis. It is folly to subject the mother to the dangers of a laparotomy, for the sake of a premature or dying infant.

TECHNIQUE.

Time of operation.—It is commonly stated that

an elective cesarian section should be done a few days before the beginning of labor. I prefer to wait until labor has started, and the pains are regular. This is advisable for two reasons: First, because the difficulty of estimating the actual period of the pregnancy is recognized by all, and the delivery of a premature baby by elective cesarian section is embarrassing, to say the least; and second, because I have found that the cases in which the operation is performed during labor, have a smoother convalescence than those operated upon prior to the beginning of labor.

Pre-operative treatment.—The administration of castor oil prior to operation has seemed to increase the amount of gas after cesarian, and copious or frequently repeated enemata have resulted in temporary, but very troublesome, paralytic ileus. A low soap suds enema, not to exceed one quart in amount, is given two hours before operation, if possible.

Anaesthetic.—I have preferred ether as the anesthetic in my cases. Nitrous oxide-oxygen is very unsatisfactory on account of the impossibility of obtaining complete relaxation. Chloroform, in my opinion, has no place in obstetrics, on account of the great tendency towards degenerative changes in the liver and kidneys, which so often follows the use of the drug.

Operation.—One cubic centimeter of "Aseptic Ergot" is given intra-muscularly as the administration of the anesthetic is commenced, to guard against uterine atony, and to control hemorrhage. I prefer the so-called high incision, as described by Davis of the New York Lying-in Hospital. This incision begins just above the umbilicus, and is carried upward, through the left rectus, for about ten centimeters (four inches). On account of the thinned-out abdominal wall, care is necessary in order to avoid entering the peritoneal cavity unexpectedly, and possibly cutting into a loop of the gut. The high incision has many advantages. It minimizes the danger of adhesions between the uterus and the abdominal wall, since after the uterus is sutured and returned to the abdominal cavity, the uterine scar and the abdominal scar are not in apposition, and hence adhesions are not likely to result. There is, I believe, less danger of hernia in the thigh, than in the low type.

I do not eventrate the uterus, but open it in situ. The old practice of eventrating the uterus undoubtedly, by peritoneal traction, predisposed to surgical shock; resulted in larger scars, more liable to hernia; and favored infection, through exposure of a larger field of operation. As a rule, one ordinary-sized pack is placed above the upper angle of the incision, to keep the gut out of the field. The uterus is pushed into the median line, a short incision, preferably down to the membranes but not through them, is made with the knife, and this is extended with the scissors until the uterine incision corresponds in length and position with the incision through the abdominal wall. The bleeding is not excessive. Attempts to control hemorrhage by sponging will be futile, and the practice of applying an elastic ligature around the cervix, or having an assistant compress the uterine arteries, will only delay the operation without in any way accomplishing the desired end. I believe that such measures may do harm by predisposing towards secondary relaxation of the uterus. If the placenta presents beneath the uterine incision, no attention should be paid to it, and the operation proceeded with as though it were not there.

After the uterus is opened it is good technique to pass the hand through the uterine incision, and sweep it rapidly around between the membranes and the uterine wall, completely separating membranes and placenta. Unless this is done, there is often considerable delay in extracting the membranes. The operator then grasps a fetal foot, and extracts, using the same technique as in breech extraction. The child is handed to an assistant, who clamps and cuts the cord, and turns it over to the person charged with its resuscitation. As soon as the child is delivered, the operator draws the uterus up to the abdominal wall and manually extracts the placenta and membranes, assuring himself, by inspection of the uterine cavity, that no membranes remain. In order to facilitate the suturing, I place my first two sutures at the upper and lower angles of the uterine wound, respectively, and use them as "guys."

The uterus is closed with No. 2 chromic catgut interrupted sutures. Care is taken that the sutures are passed down to, but not through the endometrium, in order to prevent possible infection traveling from the uterine cavity directly into the abdomen. The peritoneum of the uterus is whipped over the line of interrupted sutures, using a continuous of No. 1 plain catgut. During the closure of the uterus there is apt to be some relaxation, with oozing, and to correct this I inject one cubic centimeter of pituitary extract directly into the uterine muscle.

On account of the extreme thinning-out of the tissues of the anterior abdominal wall, more careful closure than usual will be required, in order to prevent hernia. I close in three layers, using No. 1 plain catgut, continuous, for the peritoneum; No. 2 chromic catgut, interrupted, for muscle and fascia; and metal clips for the skin.

POST-OPERATIVE TREATMENT.

Posture.—The patient is received in a warm bed, and kept in the dorsal position until well recovered from the anesthetic. She is then placed in the Fowler position, which is maintained for 48 to 72 hours, or longer in the presence of fever. She is allowed to turn from side to side while in this position. After the bowels move, the case should be treated as though she were a normal obstetric case. I personally have my cases lifted into the wheel-chair on the fourth or fifth day, and allow them to remain up until tired. This is repeated each day. The patient is allowed to take a few steps on the tenth or twelfth day.

Drop method.—I begin proctoclysis as soon as the patient is returned from the operating room, using tap water rather than normal salt. This is given continuously for from 48 to 72 hours.

Diet.—The patient is given small amounts of

warm water, or warm tea, as soon as she asks for them. No ice or iced drinks are given. Liquid diet is continued until the bowels move; light diet then follows for 36 to 48 hours, when regular diet is ordered.

Pain.—I prefer heroin to any other narcotic after cesarian section, having in mind the nursing infant, and possible effect which the various narcotics may have. The first dose is not given until at least six hours after operation, first, because it is probable that there is very little pain during this period; and secondly, on account of an early narcotic masking dangerous post-operative signs. I give from 1/24 to 1/12 of a grain, the total dose for 24 hours not exceeding 3/12ths of a grain.

Gastro-intestinal tract.—A low soap suds enema, not to exceed one quart in amount, is given at 4 or 5 o'clock on the afternoon following operation. At midnight one ounce of castor oil is given, to be followed in six or seven hours by another low enema. This is followed by the routine administration of extract of cascara, ten grains three times a day.

Gas often gives trouble after cesarian section. The introduction of six ounces of warm glycerin into the upper rectum, or sigmoid, has always given me satisfactory results. Peristalltine, a glucoside derived from cascara, may be given hypodermically, in a dose of one ampoule every six hours, with extremely satisfactory results.

Contraction of the uterus.—There is apt to be poor contraction of the uterus for the first three or four days, and I have found that my results are better if this tendency is counteracted by the administration of pituitary extract, in a dose of one ampoule four times a day, for the first five days.

Nursing the baby.—The baby is put to the breast in twelve hours after delivery, and from this time follows the routine nursing schedule.

RESULTS IN AUTHOR'S SERIES.

I am to-day reporting 45 consecutive cesarian sections performed in private practice, and on my service at the Los Angeles County Hospital. Many of the details are shown in the accompanying "Table of Author's Cases." A summary of certain phases may be apropos.

Table Summarizing Various Indications.

Indication	No. of Cases
Contracted Pelvis	18
Eclampsia	5
(With contracted pelvis 1)	
Central placenta previa	5
(With contracted pelvis 1)	
Previous Caesarean section	5
Disproportion (pelvis apparently normal)	2
Obstruction, fibroids	2
Bad obstetrical history	2
(Masculine pelvis 1)	
Pre-eclampsia toxemia	1
Ventral fixation causing dystochia	1
Stenosis of the cervix	1
Premature separation of placenta	1
For sterilization	1
To prevent destruction of perineum, torn into rectum during previous labor, and repaired after three trials	1

Number of Vaginal Examinations.

Number of Examinations	Number of Cases
0	17
1	15
2	9
3	2
4	1
? (Many)	1

Length of Labor.

Number of hours in labor	Number of Cases
0	19
0 to 6	7
6 to 12	6
12 to 18	4
18 to 24	5
24 to 30	0
30 to 36	3
?	1

Causes of Maternal Deaths.

Case 25—Acute dilatation of the stomach. Died four days after operation. Diagnosis confirmed by autopsy.

Case 36—General peritonitis. There were extensive adhesions between the fibroid uterus and the small intestine, which were separated at operation. There was evidently a perforation of the gut at the site of one of these adhesions. Death 8 days after operation.

Causes of Fetal Deaths.

Case 4—Diagnosis of fetal death made before operation but Cesarean section chosen on account of the profuse hemorrhage following even a vaginal examination. (Rigid cervix.)

Case 12—Premature, stillborn. This cervix was composed of scar tissue.

Case 15—Premature, stillborn. Very severe eclampsia, with long, rigid cervix.

Case 44—Premature, died in three days, as a result of the neglect of the attendant.

Humpstone, in an article on the end results of cesarian section, stated "that the evolution of the cesarian family is not at all an obstetric fad, the results of the glamour of operative surgery, but rather a permanent, scientific step in advance, based on sound surgical principles, applied to the fundamental principle of obstetrics." I believe that this is true. If cesarian section is regarded as a primary operation, and is performed upon clean cases in a hospital environment, the results will be good. On the other hand, if the operation is performed without a strict regard for the necessary conditions, often as the easy way out of *any* obstetrical difficult, disaster will follow.

"DRUGS IN THEIR LOCAL APPLICATION TO EAR, NOSE AND THROAT TREATMENT."

By HARVARD Y. McNAUGHT, M. D., San Francisco.

A paper on this subject, must necessarily confine itself largely to generalities, as a detailed consideration of the many agents employed would require more time than would be allowed. As a foreword it may be said that these remarks in the main are intended for the general practitioner, though we as specialists are not entirely beyond reproach in the misuse of drugs in our work. In the early days of our specialty before much was known concerning the anatomy of these parts, and the etiology and pathology of ear, nose and throat diseases, treatment was necessarily directed more

to the relief of symptoms, than to the permanent cure of disease. Our knowledge of the nature of the diseases of these parts, is today, not far from complete, and so our methods of treatment have, or should have changed.

In brief, we know what the pioneers did not know; what few general practitioners seem to know; what many of the old regime specialists have never learned, that the treatment of ear, nose and throat diseases is mainly surgical, that drugs locally applied have a very limited sphere of usefulness. More than that, drug treatment of most conditions under consideration, not only is useless, but in so far as it prevents proper treatment by surgery is, in many cases, a menace to the life of the patient. That this is no figment of the imagination can be shown by a case seen by us in consultation. The patient had a beautiful clear cut case of intrinsic cancer of the larnyx almost surely curable by operation. He was being treated by the attending specialist by sprays and other intra-laryngeal applications, given apparently to relieve hoarseness which was present. The lesson in this case is obvious.

To have some orderly basis on which to discuss such a wide subject, we have classified drugs used locally, according to the effect expected to be produced:

1. Sedatives.
2. Stimulants.
3. Destructives.
4. Astringent.
5. Protective.
6. Anesthetic.
7. Cleansing.
8. Antiseptic.

1. *Sedatives.*—In this group we have in mind the relief of symptoms of inflammation. This fails of accomplishment, by the direct application to the mucous membrane of the nose, of most drugs now commonly used. Of these menthol seems most effective. Other stereoptenes such as camphor have a similar action, as have some of the essential oils. In the pharynx and naso-pharynx, also we have found all local applications for sedative purposes, to be useless in acute conditions. Orthoform, which properly comes under the anaesthetic group, has possibly a small field of actio usefulness in painful conditions of the larynx. Menthol in oily solutions we have found most useful. *It should never be used in this manner in the nose of an infant, as a number of deaths have been recorded following its administration.*

In beginning acute middle ear conditions we sometimes get a sedative effect, and also occasionally abort the disease, by keeping the canal filled with glycerine. The effect is probably due to osmosis through the membrana tympani, thus relieving the serous distention of the middle ear. In acute inflammatory conditions of the external ear aluminum acetate solution has some sedative value. How much of this is due its astringent qualities, and how much to the wet gauze pack, is problematical. In acute suppurative conditions of the middle ear, no drug that we are familiar with has any value.

Various drugs are used in the attempt to relieve acute congestion of these regions. Among the most commonly used are the colloid silver preparations, such as argyrol, silvol, etc. The first mistake made is the manner of application. We believe that the use of cotton wound applicators (or brushes as used in the larynx) is wrong, and only increases the trouble. If such drugs were of use, the method of application should be by sprays, syringe, or gargling. The second mistake is in using them at all, for any effect you could get from them you could get from the infinitely cheaper silver nitrate, in its various strengths.

An almost universal belief exists in the value of gargles of various solutions of drugs. In our opinion the drug contents of these gargles do not influence the situation at all. Any effect produced is the result of hydro-therapy. Plain hot water, as hot as can be borne, is as effective as any gargle can be. The application of drugs to an inflamed larynx by means of steam inhalations, is another abused method. Why use the drugs, when any effects produced are from the moist heat?

2. *Stimulants.*—Here we can undoubtedly influence new tissue formation. We have a number of drugs in use, the best of which is silver nitrate. This must be used in very weak solutions, not more than 1 per cent., or we will destroy the delicate new granulations. Compound tincture of benzoin, scarlet red, also, may have to be used in turn. In general, however, there is a small field for this class of drugs. Given the need for stimulation, we should first direct our attention to the local conditions, such as cleanliness and proper drainage, and, secondly, if packing is being used, to seeing that it is not too tight, and machanically preventing the formation of granulations. Having seen to these things, providing there be no underlying constitutional states militating against the patient, stimulants will not be often needed.

3. *Destructive.*—These fill a well indicated place in therapy. Exuberant granulations may have to be reduced; small bleeding areas on the septum obliterated. For this purpose we use effectively Silver Nitrate in bead, Glacial Acetic Acid, or Chromic Acid. We must deplore the use of such substances for the reduction of turbinates or new growths. Turbinates which need reducing, had better be attended to surgically. New growths can be removed, better surgically and at the same time specimens procured for microscopical examination.

4. *Astringents.*—There are a considerable number of drugs which come under this head. Among these may be mentioned Zinc Sulphate, Alum, Tannin. These are astringent in a sense, and widely used in gargles and sprays where, as mentioned, the drug effect is negligible. Moreover in the nose and throat as ordinarily used, the medicament cannot be kept in contact with areas to be treated, long enough to be of any effect. The two to be mentioned last, the most important and useful, are adrenalin and cocaine. Where we wish a prolonged shrinkage of the mucous membrane of the nose, we can accomplish it by a careful use of cocaine, with slight adrenalin addition.

One must prescribe a weak solution, and it must be used by spray every hour. This is important, as the astringent effect will not last longer, and we have a succeeding engorgement which defeats our purpose, unless it is applied with regularity. The occasional case of idiosyncrasy to adrenalin will, of course, be found.

5. *Protective.*—These have also a small place in therapy. In acute coryzas an oily spray may be used. Menthol may be added for its anesthetic effect. The protective quality rests with the oil used and any other added drugs are so many useless additions. We consider a protective seldom called for, and then plain oil fulfills all the indications. Most of the oils in use are too light, and are washed away by the secretions in a short time. We favor liquid vaseline as being the heaviest oil, and therefore being the most protective. In acute larynx cases, intra-tracheal injections of this with 2 per cent. menthol added, protects the raw surfaces from the air and makes the patient comfortable for several hours. Such oily sprays as commonly prescribed for *chronic* nose and throat conditions are a menace to the patient's welfare, inasmuch as they accomplish nothing, and deprive the patient of proper treatment.

6. *Anesthetic.*—These need only a brief mention. Our main reliance for surface anesthesia is cocaine. Novocaine, stovaine, apothesine, have a very slow and slight effect on mucous membranes by surface application. Orthoform has a slight anesthetic effect, and has been used in the larynx though in conditions painful enough to require anesthetic, it is not of much use. We possess, however, in superior laryngeal nerve injections, and amputation of the epiglottis, effectual means of overcoming extreme pain in this region on deglutition. Regarding the use of cocaine we would like to add our approval of its use in saturation in adrenalin. In many hundreds of cases where we have so used it, not the slightest constitutional effect has been seen. On the other hand, there are recorded many cases of poisoning, by the use of dilute solutions, especially where they have been kept in contact with the mucous membranes for some time. Quinine and urea hydrochloride is an unsatisfactory anesthetic for our use, due first to slowness of action in dilute solutions, secondly, fibrinous exudate and edema, third, danger of sloughing and tetanus. It gives good anesthesia, but possesses the disadvantages mentioned. Novocaine, ½ per cent., in potassium sulphate 2/5 per cent. solution has been used by us for some years, with perfect safety and satisfaction. It is about one-eighth as toxic as cocaine, and used in above formula is unirritating. Lately apothesine, made in this country, has been used. It is similar in action to novocaine, but has been found weaker, and one has to wait longer for complete effect.

7. *Cleansing.*—These agents are limited to certain alkalies such as soda, which tend to liquefy the mucous. It was put into this classification in order that attention might be called to the widespread abuse of cleansing agents. We are aware of only two conditions in the nose where a wash is indicated. One of these is ozena, and the other to cleanse the nose of secretions and detritus for a short time following certain intra-nasal operations. As commonly prescribed by general practitioners, and many specialists, it is worse than useless. Unless a solution is isotonic with the blood serum, there occurs either an exosmosis, or an endosmosis, between the fluid and the cells of the mucous membrane. In the former case, we have a dehydrating, and drying effect which is irritating, and in the latter there is a waterlogging. Many cases are seen with boggy mucous membranes in the nose. In these cases inquiry elicits the fact that a nasal wash or spray, possibly prescribed years ago, is still being used. The boggy condition disappears on stopping the wash. The most crying evil, however, is the use of washes in sinus infections, when the only treatment should be operative. Many a chronic case of sinus infection is religiously washing the nose daily with some alkaline antiseptic, prescribed by some medical man who should know better. After intra-nasal operations, the use of a wash for a few days may possibly be permitted. Even here apart from the danger to the middle ear, healing can be delayed by any but a brief use of these agents. We strongly condemn the use of lavage in an operated sinus, believing that nothing is accomplished that drainage and aeration will not do. Moreover we believe it to be a means of prolonging pus discharge from such cavities.

In the ear a wash may be used in acute cases, remembering that plain water will prolong the discharge. Owing to the astringent effect of alcohol on granulation tissue, an ear wash should always contain a large and increasing proportion of this drug.

Too many chronic suppurative ear cases are having washes prescribed for them instead of the needed operation. Washes then have a place in treatment if it is realized that they are never curative.

8. *Antiseptic.*—The name of this class is legion. Most of them cannot be used in sufficient strength to be of any use as a bactericide. The nature of most of the diseases with which we deal, as well as anatomical conditions, render them unavailing. Antiseptic gargles, as well as antiseptic nasal washes, are misnomers. We cannot reach the tonsil crypts, nor the ethmoid cells, and if we could, the strength of the solution is too weak and the period of contact too brief to be of use. In limited spaces such as streptococcic ulcer, pure carbolic is effective, as are iodine, silver nitrate, etc., in Vincent's Angina.

In conclusion we would reiterate that drugs play a very small and unimportant part in the modern treatment of ear, nose and throat diseases, and that their use, except for some very definite purpose, may, by depriving the patient of needed operative treatment, result in much harm.

Try to ease the mind of the patient, encourage him to look forward to being cured, even if thou are not thyself convinced of it, for this will greatly strengthen his nature.

When the patient does not follow thine injunctions or his servants and people do not promptly obey thine instructions or show thee the proper respect, it were better to give up the treatment.

Fix the fee of thy patient when his disease is in its ascendancy and most severe, for as soon as he is cured he will forget what service thou hast rendered.

The more thou demandest for thy service, the higher thou fixest the fee for thy treatment, the greater will they appear in the eyes of the people. Thine art will be looked upon as insignificant by those whom thou treatest for nothing.

Do not visit thy patient too often and do not remain with him too long, unless the treatment of the disease demands it, for it is seeing the doctor anew that gives joy to the patient.

Too large a practice confuses the judgment of the physician and causes him to give mistaken directions.

Excessive activity and effort diminishes the power of the physician and weakens his spirit, for he must constantly think and be concerned about each patient, hopeful for his recovery, and pray for him as though he were "one of his kin, that is near to him" (Lev. xxi, 2). Isaac Judaeus, 830-932 A. D.

Book Reviews

1917 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 866 pages, 331 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, $6.50 net.

Again we welcome a Mayo volume. The clear, lucid style of not only the Mayo papers, but of the collaborators, is a joy to the reader. The personal element, the clear technic, even to details (as in the intravenous injections) are eagerly read, knowing that they are the results of vast and critical experience. The alimentary canal papers are somewhat limited as to space. On the other hand, the experimental laboratory comes in for a good share of the pages. Surgery of the spleen forms quite a complete picture. The chapters on trench foot, the war's influence on medicine, and medical service in the United States are interesting. Syphilis covers several chapters, and, notwithstanding the mass of literature already before us on this subject, we read again, with benefit, of the treatment being used in the Mayo clinics. The volume of 1917 papers is worthy of a place beside its predecessors.

M. I. J.

Surgical Clinics of Chicago. Volume 2, Number 4 (August 1918). Octavo of 202 pages, 110 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Published bimonthly. Price per year: Paper, $10.00; cloth, $14.00.

Contents.—L. L. McArthur: Tumor of the pituitary gland. Kellogg Speed: Transarticular capsulorrhaphy on the knee. A. D. Bevan: Hemangioma of the scalp. Skin grafting: burn of chest repaired by Thiersch grafts. Sarcoma of the lower jaw. Carcinoma of larynx. Carl Beck: Partial rhinoplasty. Treatment of Phlegmon of hands and fingers. D. N. Eisendrath: Acute Abdomen. W. J. Woolston: Malignant disease of cervical stump after supravaginal hysterectomy. E. L. Moorhead; Clinic. G. L. McWhorter: Surgical treatment of needles in the hand. Isolated and complete dislocation of fifth carpometacarpal joint. Harry Culver: Pyelonephritis. L. E. Schmidt: Operative treatment of urethral fistula. Technical errors in the operative treatment of urethral stricture. H. L. Kretschmer: Fulguration treatment of tumors of the bladder. Fulguration treatment of urethral caruncle. Wm. Hessert: Surgical clinic on fractures. G. D. J. Griffin: General discussion of fractures.

A Manual of Otology by Gorham Bacon, assisted by Truman Laurance Saunders. 7th edition. 566 pp. New York and Philadelphia: Lea & Febiger, 1918. Price, $3.00.

This well known textbook will, in its last edition, make new friends among readers of otology. The authors have spared no effort to bring their information up to date. In order to emphasize the importance of the operative treatment in adenoid growths, enlarged tonsils and suppurative diseases of the labyrinth, the chapters on these subjects have been entirely rewritten and enlarged. A chapter on the submucous resection of the nasal septum has been included so as to make the reader entirely comfortable in the specialty. It might have been proper here to mention Ballenger's swivel knife as a convenient and safe instrument. The educational influence of the war in medicine is shown by the addition of a new chapter giving the details of U. S. requirements for testing the ears of aviation candidates. The text gives all through the book an impression of reliability by its terse, matter-of-fact language. Short case histories keep one at all times in close touch with the patients in private practice, hospital clinics and in the literature. The directions given and the numerous prescriptions are dependable. Over 200 illustrations, largely from photographs, make the instruction given understood beyond all doubt. The student and the general practitioner will find Bacon's Otology a handy book for study and reference.

H. B. C.

Headaches and Eye Disorders of Nasal Origin. By Dr. Greenfield Sluder. 272 pp. St. Louis: Mosby, 1918.

The author has become convinced that the nasal factors are more frequently the cause of "asthenopia," than systemic disorders. He does not so much deal with cases where the relation between a sinus suppuration present and the patient's symptoms is evident, as with those where suppuration has ceased (operated or not) or where none has been found; but where the symptoms still continue. This class comprises three groups: (1) vacuum frontal headaches with eye symptoms only; (2) spheno-palatine ganglion neurosis; (3) hyperplastic edema of the postethmoid-sphenoid area. In about 200 pages, beautifully illustrated and easily read, the author painstakingly describes how the close anatomical relationship of passing nerves exposes them to the occasionally vicious contents of the nasal accessory sinuses causing the peripheral symptoms, of which "the lower half headache" is the more prominent, and how these disorders are diagnosed and treated. About 50 pages of case histories further illuminate his conclusions. The

results of the treatment appear to incline to extremes of success or failure, indicating that there may still be considerable diagnostic difficulty in these cases.

Dr. Sluder has given us a review of his rich clinical observations and the importance he gives to the formative and rarefying bone changes as a cause of these annoying symptoms is bound to remain fundamental. H. B. C.

Locomotor Ataxia. By Wm. J. M. A. Maloney, New York: Appleton. 1918.

Without the least hesitation one can say that Dr. Maloney has given us the best monograph in the English language on locomotor ataxia. Nor lies the virtue of the book in the elucidation of this subject alone; its careful reading and rereading gives one a new insight of the vast scope of neurosyphilis; and more than that, a renewed knowledge of the fundamental anatomy and physiology of the nervous system. There is so much to commend in the different chapters that one is at a loss to know where to begin. Those devoted to the mental states in tabes and their treatment are perhaps the most valuable because they tend to break down the pessimistic views that are held by too many doctors in regard to this disease. We at large are only too prone to employ drugs in medicine and relegate other and important adjuvants to an obscure and neglected place. We leave too many openings for the devices of different cults, because diseases are treated rather than human beings. Some years ago, starting with the well-known fact that a tabetic, no matter how many other symptoms he may have, is rarely ataxic if he has an optic atrophy, and that an ataxic if he becomes blind often regains his equilibrium, Dr. Maloney elaborated an improvement of the Frankael method which will permit most tabetics not only to throw away their sticks but even walk in the dark. In this way he supplements his treatment of the mental state, with a definite physical help. While these observations alone would commend the work, there are many other chapters that invite and hold one's interest. It is a splendidly well-written monograph, which makes its reading a pleasure. M. B. L.

Correspondence

INTERESTING COMMENTS FROM PARIS.

Headquarters American Red Cross,
Paris, Oct. 18.

To the Editor:—I am sending you an outline of Cannon's address on Shock, delivered to-day before the Biological Society of Paris, followed by two hours of discussion which developed nothing new. It would interest an American Society of Medicine to attend one medical meeting here. When a man ceases to be interesting in his discussion everyone begins a whispered conversation with his neighbor while the poor devil speaking keeps on till he has presented all of his carefully prepared notes. There seems to be no time limit to discussion. The Congressional Record method is an improvement as is our custom of sharply limiting it as to time.

I am having sent to you copies of "War Medicine," published by our office. You may find things of interest to abstract. The war has developed a wonderful advance in the understanding of wound bacteriology and healing and San Franciscans will be glad to know that Capt. Jablons, formerly pathologist of the St. Francis Hospital, has done great work on anaerobic bacteria and the study of strains of streptococci. He teaches wound bacteriology at the Central Laboratories, where intensive courses are given to large groups of medical men on all subjects of vital interest in their work. We have reason to be proud too of the work done in the field and hospitals and in the Red Cross by all our California men and women. One meets them everywhere and the record of their work will bear favorable comparison to the highest standards in every field they are in. It would be hard to mention all the names and it isn't necessary. The whole story will be told soon.

Sincerely yours,

PHILIP KING BROWN,
Asst. Medical Advisor to A. R. C. in France.

SAN FRANCISCO HOSPITAL COLLOQUIA.

To the Editor:—In reply to your communication of November 18th, asking for a statement of the function of the Stanford Colloquia and their history so that you might take up the matter editorially in the Journal, I am sending you the following for your consideration:

Somewhat over a year ago one of the surgeons of the S. F. Polyclinic suggested the holding of Colloquia in the Surgical Amphitheatre of the S. F. Hospital on Friday mornings, this being at that time the morning set aside for the S. F. Polyclinic to do its surgery. Accordingly notices were sent to the medical profession of San Francisco inviting them to attend. From the very beginning the effort was attended with great success, and then under the able direction of Dr. Ryfkogel who took charge of the Colloquia shortly after they had commenced, they became even more popular and the opportunity thus given was eagerly seized by the profession generally to attend a surgical clinic where they could not only watch operations, but also take part in the discussions which followed all operations or ask any questions during the operations. That this was beginning to fill a long-felt want in this community for something of this kind there was no doubt, as was attested by the very large attendance at each meeting. Then on July 1st of this year the S. F. Hospital, which heretofore was divided into five services among as many teaching institutions was entirely changed so that it was and now is divided into two services—Stanford University Medical School and the University of California. This was done in the interest of greater efficiency for the S. F. Hospital, thanks to Dr. Brodrick, superintendent.

Under the new order of things the Colloquia would now have been discontinued but for the recognition of their value by Doctors Ophuls and Rixford of Stanford Medical School. After some informal discussions a permanent Joint Committee was appointed, consisting of Doctors Wm. Ophuls, chairman; Emmet Rixford, Harold P. Hill, H. A. L. Ryfkogel, C. F. Welty, S. Nicholas Jacobs, secretary.

It was finally decided that the Colloquia at the S. F. Hospital be continued and start at 9 a. m. Surgery and Surgical Specialties, including Gynecology and Obstetrics, on Thursday mornings, and Medicine and Medical Specialties on Fridays.

A number of lectures were selected for these Colloquia, from the various branches of Surgery and Medicine, each lecturer to have charge of the program on the day set aside for him. Notices were sent to all physicians of San Francisco, Alameda, San Mateo, Santa Clara, Marin, Napa and Contra Costa counties inviting them to attend.

Printed programs are sent in advance to those who register with Dr. Ophuls, Dean of Stanford University Medical School, and pay a fee of one dollar per quarter to cover postage, printing, etc., although all physicians are welcome whether they register to receive programs or not.

Commencing with October 3rd, two Surgical and

two Medical Colloquia were held which were very successful and then came the influenza epidemic with the closing of the S. F. Hospital to all except influenza patients and the consequent indefinite postponement of the Colloquia.

It is now hoped that the hospital will soon be running normally again and it is expected to resume the Colloquia about the middle of January. Notices will again be sent out to all physicians.

It is intended as time goes on to gradually extend the scope of these Colloquia so as to more fully meet the need for post-graduate instruction in this community and especially for those physicians out of town who might find it to their advantage to come and spend Thursday and Friday mornings at the S. F. Hospital.

Very truly yours,

S. NICHOLAS JACOBS,
Secretary.

San Francisco.

County Societies

ALAMEDA COUNTY.

Reorganization of the Oakland health department, including appointment of a Health Director and a shake-up in City Food and Market Inspectors, is being planned in conferences between Commissioner F. F. Morse and a committee from the Civil Service Commission.

Should he not be called into National Service, Dr. Daniel Crosby, acting Health Officer, will become Health Director under the new plan, with power of dictator of the entire department under Commissioner F. F. Morse.

The program of the regular meeting of the Alameda County Medical Association held December 16, 1918, included:

I. "What have we learned from the Epidemic of Influenza"? Dr. H. S. Buteau.
II. A Review of the Recent Epidemic of Pneumonia. Dr. Albert H. Rowe.

At the close of the program a buffet supper was served.

The clinics at the Oakland College of Medicine, which were discontinued during the influenza epidemic, are again conducted as usual.

Capt. H. P. Nottage, chief of the section of head surgery at Camp Cody, New Mexico, has been acting as commanding officer of the "Old Base" Hospital during the epidemic of the influenza.

Capt. Edward von Adelung spent Thanksgiving with his family in Oakland.

LOS ANGELES COUNTY.

Dr. Lewis B. Morton, who left for France last Christmas, in the Naval Base Hospital Unit No. 3 organized by Dr. Rea Smith, is now doing special work at the casualty clearing station at the front, according to Mrs. Lewis B. Morton, recording secretary of the Friday Morning Club.

Lieut. Kvello is Wanted on U. S. Business.

Dr. William Duffield, president of the Los Angeles County Medical Association, announced Nov. 12, that he held a telegram of great importance to First Lieut. Olaf Andrew Kvello, of the medical corps, and asked for help in finding the officer. The telegram is at Dr. Duffield's office, 516 Auditorium Building.

Personals.

Dr. Lulu Hunt Peters, ex-chairman public health committee, California Federation of Women's Clubs, returned Nov. 17 and is now awaiting orders to go to Serbia in a unit of ten women doctors to be sent over by the American Women's Hospital Committee for reconstructive purposes.

In Argonne.

Dr. Morgan Prime Lee, medical detachment 363d infantry, writes that they were in battle nine consecutive days and nights. Shells came uncomfortably near the dressing station which was on a fairly well protected hillside. There were many casualties among men and horses close by. Any one who wants to know what downright terror is should undergo shell fire for a while. One is contending with a force so unequal and so powerful for injury.

L. A. Doctor at Head of Medical Camp.

Dr. Albert Moore has been placed in command of the Medical Officers' Training Camp at Fort Riley, Kansas, during Lieutenant-Colonel K. W. Kinard's absence. Dr. Moore entered service from Los Angeles as captain.

Memorial for Dr. Elizabeth Follansbee.

A bed will be endowed in the Children's Hospital in her name. Mrs. W. W. Stilson has invited all the friends of the departed pioneer woman physician to a meeting at her home, 2731½ West Ninth street, Sunday, December 8, 3 p. m., where club women of the city propose to establish a memorial in honor of Dr. Elizabeth Follansbee.

Influenza News.

Except business essential to health and sustenance the Association wants a compulsory "flu" mask ordinance and a general ban upon public gatherings, including the closing of department stores, dry goods houses, cafeterias, and all places of business, except grocery stores, meat markets and drug stores, as well as upon theaters, churches and schools.

The L. A. health officials placed at the disposal of the people anti-flu vaccine. Free clinics or depots, for the free inoculation of applicants were opened at the following places: City department of health, No. 119 Normal Hill Center, hrs. 9 a. m. to 12 m.; Belle White Memorial Hospital, No. 312 North Boyle street, from 1:30 to 3:30 p. m; University of So. California Clinic, Trinity and Washington streets, 12 to 3:10 p. m. Dr. Pascoe of the health department is in charge of the vaccination.

First aid and home nursing classes were reopened Nov. 25 at Red Cross Headquarters, Tenth and Main streets. The demand during the influenza epidemic proved the civilian value of nurse aides training.

Dr. Lulu Hunt Peters advocates the use of masks and a double one for those who do not believe in germs, as they are the ones who sputter and spatter the most.

Dr. L. M. Powers, health chief of Los Angeles, plans to have the city council appropriate $10,000 for an automobile patrol to enforce quarantine regulations in the homes and thus fight the influenza epidemic.

Friday Morning Club Urges Separate Quarters at County Hospital.

The club has sent resolutions to the Board of Supervisors asking that separate quarters be established for colored nurses, and commended the white nurses for remaining at the hospital during the epidemic with separate resolutions to the nurses themselves.

Graves Dispensary Resumes Business.

The daily clinics, which had been suspended during the influenza epidemic, resumed work on Nov. 18, at the Selwyn Emmett Graves Memorial Dispensary, on the University of California property, 737 No. Broadway. This dispensary treats without charge over 30,000 people a year and daily clinics are maintained in medicine, surgery and practically all of the specialties. Dr. Geo. H. Kress, the dean of the college, is in charge of the clinic.

ORANGE COUNTY.

On account of the influenza epidemic the Orange County Medical Association held no meeting during the month of November.

The regular December meeting was held in the Santa Ana Library, with fair attendance.

The program for the evening consisted of a symposium on influenza, under the following headings: History, Dr. J. L. Maroon, Santa Ana; diagnosis, Dr. H. A. Johnston, Anaheim; bacteriology, Dr. J. A. Jackson, Anaheim; nose and throat complications, Dr. Tralle, Santa Ana, and the nervous complications, by Dr. R. A. Cushman, Santa Ana. Others were on the program but were unable to be present.

The discussion lasted until late in the evening and was most interesting. Several of the members present told of their varied experiences during the epidemic. The papers by Dr. Maroon and Dr. Jackson were especially well received.

Several points were brought out in the discussion and were assented to by the majority of the members present, some of these being:

(A)—that it is highly probable that we will have the disease, in epidemic form, with us for months to come.

(B)—that the use of vaccines has a value only in the prophylaxis and that serums and sero-bacterines may be of slight value in the treatment.

(C)—that the use of anti-pyretics should be discouraged.

(D)—that it is probable that the epidemic will take its toll from the population independent of the quarantine.

(E)—that the chief value of quarantine may be ultimately that the rapidity of the spread of the epidemic may be slowed down and the virulence modified, with better opportunity for nursing and care.

(F)—that there can be no successful quarantine until the bacteriology of the disease is on a settled basis.

(G)—that the reason why the health boards and civic organizations have been formulating such varied and different rules and regulations in the endeavor to control the epidemic is because of our lack of definite knowledge of the bacteriology of the disease.

Word has been received, from France, that Major Winters, of Santa Ana, has received a shell wound in the ankle.

Captain W. H. Wickett, of Anaheim, who is in France cables that he expects to be home shortly.

Dr. C. D. Ball of Santa Ana, while stepping from his auto to pick up a pair of gloves was struck by a passing auto and besides receiving many bruises suffered a dislocation at the right hip joint. He is recovering slowly.

Miss Frieda Janss, daughter of Dr. J. Janss of Anaheim, is slowing recovering from a severe attack of influenza-pneumonia.

Notices

NO MORE PHYSICIANS TO BE COMMISSIONED IN THE MEDICAL CORPS.

At ten o'clock on the morning of Nov. 11th, the War Department discontinued the commissioning of physicians in the Medical Corps.

This condition, in all probability, is permanent and no further consideration will be given applicants for a commission in the Medical Corps until further notice.

Department of Industrial Medicine

It is the intention to make this department of particular interest and value. In it will be discussed practical problems of social medicine, industrial accident practice, insurance fees, and State medicine. It is requested that doctors, especially in smaller towns and the country, write us in detail as to their experiences with insurance companies, their ideas of proper fees, and suggestions for discussion and improvement in this field. These letters will not be published if so requested.

RESULTS OF GROWTH OF INDUSTRIAL MEDICINE.

Big business appreciates already, to a surprising degree, the economic benefits to be derived from expansion of industrial medicine and surgery. A like appreciation is rapidly permeating the entire world of business and industry. It pays to take care of the worker. Preventive medicine pays in industry. These are established facts. It is just as important and profitable to maintain the human machine at full efficiency, as it is to maintain any other machine at full efficiency.

The tendency is already manifest which takes medical practice among workers away from the private practitioner and centralizes it in institutions. Says B. B. Lyons, superintendent of the Delaware Hospital in Wilmington, Del.[1]: "How is the physician and surgeon to be compensated (for this loss of 'business')? To what extent will existing hospital facilities be used in this work? How will the present hospitals be affected by the inevitable increase of company hospitals organized by industrial concerns to care for their own injured? In order to answer these questions wisely, the hospital executive must study the problems of industrial welfare, and keep pace with the great spirit of the times which is transforming self-interest into service. Every hospital has a service to sell to the industrial concerns in its neighborhood. Ability to make this service attractive and market it to good advantage will largely govern the success of many hospitals in the future, especially those located in or near industrial sections. The hospital superintendent who possesses vision, courage and the practical common sense to transmute his vision into fact will be able to seize this opportunity for service and with it benefit all in his community."

Lyons points out further that industrial medicine and surgery often prove the key to knotty problems between capital and labor. Among the fruits of industrial medicine are increased production, decreased cost, increased health, happiness and contentment of workers, and often actual increase of wages. As by-products may be mentioned increased loyalty of workers, heightened industrial morale, and decreased labor turnover.

It is worth the while of hospital executives, even in small rural hospitals, to consider these things and ponder them well. The hospital, both urban and rural, is the coming center of organized medicine. Many new and unsuspected possibilities are awaiting discovery. If the hospital on a private basis is to survive and fill its full social function, it must be alive to the trend of industrial and organized medicine. This is a field as yet barely entered. Let the hospital aggressively seek out new avenues of service in industry and business.

WORKMEN'S COMPENSATION LAWS.*

Compensation legislation in the United States has developed in the last few years. The first

[1] Modern Hospital, XI, 4, 299.

* See Bulletin U. S. Bureau of Labor Statistics, 240, May, 1918.

permanent laws were enacted in 1911 by Washington, Kansas and Wisconsin. Since then a total of 37 states and 3 territories have followed suit, in addition to the federal compensation acts of 1908 and 1916. Workmen's compensation for loss of working time has thus become a well established principle and is an economic fact with which every physician, directly or indirectly, is concerned. The compensation states comprehend about 77 per cent. of the persons gainfully employed in the United States, including practically all of the so-called industrial states.

Compensation laws are of three types, according to the degree to which employers are forced to accept their provisions. Under a compulsory law, employers are forced to accept the act and pay the compensations specified. Usually in this type, the act is equally compulsory for the employee, as in Arizona, for example, he may have the option of suing for damages. Under an elective compensation act, the employer may accept or reject the act, but is usually penalized for rejection by abrogation of the usual common-law defenses. The employee has a similar right of rejection. No compensation law covers all occupations. Exemptions are usually represented by agriculture, domestic service, casual employment, and sometimes by non-hazardous employments. In some states, such exempted employments may come under the compensation act by voluntary election by the employer or joint election by employer and employees. Under these conditions, the employer is not penalized for not electing the act. To this extent such a compensation act is termed a voluntary act.

Further, an act may be elective as to private but compulsory as to public employments. Also, compensation acts are described as compulsory or optional, according to whether or not they require some form of insurance. Of the 40 compensation laws, 12 are compulsory and 28 elective as to compensation provisions, while 35 are compulsory and 5 elective as to insurance provisions. Great variation in methods appears in the 35 states which require insurance. The state itself may act as insurance carrier, requiring all employers under the act to avail themselves of it. Again, the state may entirely abstain from acting as a carrier, and require insurance in private, mutual or stock companies, or may permit supervised self-insurance. Thus four types of insurance are found. These are (1) state monopoly, (2) a competitive state fund, (3) private insurance, either stock or mutual, and (4) self-insurance, where employers carry their own risk. In this last case, proof of solvency, bonds or other security is required as proof of ability to pay compensation.

Certain points should be noted in a compensation law. These are its scope, i. e., what employments are included; the amount of compensation provided, including compensation scale, length of time benefits are paid, maximum and minimum limits, amount of medical service and length of waiting period; provisions for administration, in order that justice and economy may prevail; and, finally, nature of injuries covered and security of payments.

As has been said, no compensation law covers all employees. The chief exemptions, in order of importance, are (1) non-hazardous occupations, (2) agriculture, (3) domestic service, (4) numerical exemption, exempting employers of less than a specified number of employees, (5) public employees, (6) casual employees, and (7) employments not conducted for gain. Fourteen of the 40 states include only hazardous employments. All but Hawaii and New Jersey exempt agriculture. This widespread exemption is apparently due to opposition from farmers as a class, as agriculture can properly be classed as a highly hazardous employment. Domestic service is exempted in all states except New Jersey.

All compensation laws are limited in scope not only by character of employments covered and persons compensated, but also by nature of injuries covered. Usually the injury must have occurred during the employment and as a natural consequence of it. Usually injuries are not compensated when due to employee's intoxication, gross carelessness or wilful misconduct.

By waiting period is meant the interval elapsing between receipt of injury and beginning of compensation. In Oregon and Porto Rico, compensation begins with receipt of injury. All other states require that disability from injury must extend over a varying waiting period (in 18 the period is two weeks) before compensation begins. A general tendency is evident to reduce the waiting period.

The modern principle of workmen's compensation excludes any question as to employer's negligence and liability. It is based on the economic necessity of the worker. Its risks are assumed by the consuming public, acting through the employer, which furnishes necessary relief and benefits to injured workers. There is sharp difference of opinion as to the extent to which the employee should be compensated for losses resulting from industrial injury. One extreme would put on industry the entire cost of rehabilitation of the injured, including full wages and medical service during disability, and life pension in case of permanent disabilty. Again it is held that only a fraction of the employee's loss should be compensatable. In most cases, compensation is based on the loss of earning power of the injured workman, while several states base their compensation scale on the workman's need rather than his wage loss.

There is extreme variety in compensation provisions, all seeking, without complete success thus far for a law which will strike a just balance between the financial ability of the industry, the need and loss of the injured worker, and the danger of encouraging malingering.

The California law provides for the payment of 65 per cent. of the weekly wage to the disabled employee, with a minimum of $4.17 and a maximum of $20.83. The maximum period of compensation in case of death is 240 weeks; in case of permanent total disability is for life; in case of temporary disability is 240 weeks.

The real object of compensation is the rehabilitation of the injured workman. It is therefore surprising that only four states (of which California is one) require the employer to furnish unlimited medical service. The old idea of compensation as indemnity for employers' negligence is still too common in legislatures. The entire subject of industrial rehabilitation is new and is receiving enormous impetus from the war and the emphasis now being placed on rehabilitation of military casualties. Yet industrial rehabilitation is an enormously greater problem in the United States and a problem which will long outlast the social and industrial consequences of the war.

Neither the medical profession nor civil hospitals are adequately organized to handle this huge problem. Such organization is inevitable and both physicians and hospitals must meet the issue in the near future, whether they wish or not. It therefore behooves physicians to understand the elements of the problem of industrial rehabilitation and to familiarize themselves with present legislative tendencies, economic restrictions and social needs.

A study of the present 40 state compensation laws shows that the scope of these acts and their partial disability schedules have undergone little change since their original enactment. On the other hand, there is constant change and wide vari-

ation in the waiting period and the requirements as to medical service. There is evidence throughout of extreme unwillingness to profit by experience in other states. The result is much misdirected and duplicated effort. One purpose of the Department of Industrial Medicine in the Journal is to help remedy this outstanding defect so far as the physicians of California are concerned. Elective features of these compensation laws have not proved satisfactory as too many employers refuse to come under the act, thus depriving their employees of compensation benefits.

Greatest change has been apparent in the extent of medical services provided. There is a strong tendency to furnish more extensive medical services and to remove a maximum limit, requiring employers to provide medical services as long as reasonably necessary. Closer supervision by the state of the quality of medical service rendered is another outstanding trend. The right of employees to choose their physician, when the employer is playing the fees, is also being established.

SHIPPING BOARD HEALTH RULES.

Lieutenant-Colonel P. S. Doane is director of health and sanitation for the U. S. Shipping Board Emergency Fleet Corporation. He has issued a booklet of sanitary and health welfare standards which is a model of its kind. In the introduction, he says:

"A healthy and energetic force of workmen is as essential to the speedy construction of the ships as a well-laid-out yard, prompt delivery of materials, labor-saving machinery or efficient methods of work.

"The building and operation of ships by the U. S. Shipping Board Emergency Fleet Corporation is the greatest industrial task ever undertaken, and, being a governmental activity, the hygienic and sanitary standards under which this work is carried on should be worthy of adoption by private industry.

"The health of the workers also has a very direct influence upon the cost of building ships, for a dollar's worth of work should be obtained for every dollar paid in wages. This is not possible with employees in ill health or with lowered vitality.

"To obtain such conditions it is necessary that the principles of industrial sanitation as established by actual practice shall be as clearly understood and strictly conformed to. This requires the expenditure of funds, but experience has clearly demonstrated that the investment pays dividends.

"The enormous increase in the shipbuilding industry to meet war needs has caused a constant influx of workmen into the shipyards who are unused to the rigor and exposure of shipbuilding. This condition demands unusual care to safeguard their vitality."

WHAT EVERY DISABLED SOLDIER AND SAILOR SHOULD KNOW.

That the Government is resolved to do its best to restore him to health, strength, and self-supporting activity.

That until his discharge from hospital care the medical and surgical treatment necessary to restore him to health and strength is under the jurisdiction of the military or naval authorities.

That the vocational training which may be afterwards necessary to restore his self-supporting activity is under the jurisdiction of the Federal Board for Vocational Education.

That if he needs an artificial limb or other orthopedic or mechanical appliance the Government supplies it free upon his discharge, and afterwards keeps it in repair and renews it, when considered necessary.

That if, after his discharge, he again needs medical treatment on account of his disability the Government supplies it free.

That any man whose disability entitles him to compensation under the war-risk insurance act may be provided by the Federal Board with a course of vocational training for a new occupation.

That the Government strongly recommends each man who needs it to undertake vocational training, and put himself under the care of the Federal Board, but the decision to do so is optional with each man.

That if his disability does not prevent him from returning to employment without training and he elects to follow a course of vocational training provided by the Federal Board, the course will be furnished free of cost to him, and the compensation provided by the war-risk insurance act will be paid to him, but no allowance will be paid to his family.

That if his disability does prevent him from returning to employment without training and he elects to follow a course of vocational training provided by the Federal Board, the course will be furnished free of cost and he will also be paid as long as the training lasts a monthly compensation equal to the sum to which he is entitled under the war insurance act or a sum equal to the pay of his last month of active service, whichever is the greater, but in no case will a single man or a man living apart from his dependents receive less than $65 per month, exclusive of the sum paid dependents, and a man living with his dependents receive less than $75 per month, inclusive of sum paid to dependents.

That in addition to the above the family or dependents of such disabled man will receive from the Government during his period of training a monthly allotment and allowance payment in the same amount as that paid prior to his discharge from the Army or the Navy.

That upon completion of his course of training he will continue to receive the compensation prescribed by the war-risk insurance act so long as his disability continues.

That in nearly every case, by following the advice and suggestions of the Federal Board, he can either get rid of the handicap caused by his disability or acquire new powers to replace any that may have been lost.

That if he is willing to learn and to take advantage of the opportunities to increase his skill offered him by the Federal Board he can usually get a better position than he had before entering the service.

That if he fails to take advantage of these opportunities he will find himself badly handicapped when he is obliged to compete with the able-bodied men who come back to work after the war.

That the Federal Board, through its vocational experts, will study his particular disability and advise him as to the proper course to pursue and give him free training for the occupation best suited to him.

That on the satisfactory completion of his training the Federal Board, through its employment service, will assist him to secure a position.[1]

That public authorities and other large employers will in many cases, at least, give the disabled soldiers and sailors preference when filling vacant positions, provided they possess the training necessary to fill them.

CONCERNING LARD.

We have been told that American cooking is too greasy, and possibly before the war there was some truth in the assertion; but at the present writing, with the high cost of lard and lard substitute, we

1 Vocational Summary, October, 1918.

are inclined to believe that the American chef is not so extravagant with grease.

Lard of itself is a fat food, the composition of which produces a higher number of heat units than any other food substance, and with the enactment of various food laws it was found to be adulterated principally with beef fat and cotton seed oil. This formula under existing laws is known as compound, and has a very ready sale, as against pure lard, on account of its cost, which is considerably less, and from a hygienic and dietetic point of view there are many who prefer this mixture.

Lards are classified commercially as Neutral Lard, Leaf Lard, Kettle Rendered Lard, Standard Lard and Butchershop Lard.

Neutral lard is manufactured from leaf lard and is chiefly used in the manufacture of butter substitutes, such as oleomargarine.

Leaf Lard is made from the residue after extracting neutral lard, and is a higher grade product.

Kettle rendered lard is made mostly from trimmings.

Standard lard is made from the fat of the whole animal, including the mesenteric fat.

Ordinary butcher-shop lard is open kettle rendered, and is made from fats obtained from trimmings and scraps, but has the disadvantage of being darker color, due to rendering over an open fire.

Cracklings, a by-product of this lard, is used for chicken feed and soap grease. An interesting feature in connection with the manufacture of lard is the melting point.

Fat from the intestines has the highest melting point, namely, 111°, whereas, the fat from the foot has the lowest melting point, namely, 95°. For the determination of organic impurities in lard the color reaction has given very good satisfaction, and is very simple to apply.—C. L. Megowan, V. S., Sacramento Dept. of Health.

There was a time, not so long ago, when a man who applied for work at a factory had to be physically sound in every way. A cripple was a cripple, and there were few avenues of employment open to him. The changing industrial conditions are making places for men who formerly were considered unfit. The fit are supposed to fight in this day and age.

A few days ago an advertisement made an appeal for "slightly crippled men for light factory work." Probably never before in the history of Indianapolis has there been such a demand for labor that factory owners have to resort to advertising for cripples to fill the jobs. This is merely indicative of the many useful things that the slightly crippled may do. Crippled men and women have held office positions for years and their infirmities rarely interfere with their efficiency. Probably the same thing will be true of factory employment. The normal man does not realize the value of a full complement of arms, legs, and fingers. If one hand is maimed, the other hand is forced to be twice as useful as formerly. There are men and women with two artificial arms who do intricate work, and do it satisfactorily.

Paving the way for the use of cripples in light factory work may mean looking forward to the time when men injured in the great war are sufficiently recovered to go back into the industries. Much is being done now in the way of reconstruction for these men. They are taught work that they can do, regardless of what has happened to them. The chief idea is to provide every maimed man with an education so he can earn his living. After the war there should be as little charity as possible. Returning soldiers will not want alms, but they will want a place to work and a fair chance at the job.—Indianapolis News.

Department of Pharmacy and Chemistry

Edited by FELIX LENGFELD, Ph.

Help the propaganda for reform by prescribing official preparations. The committees of the U. S. P. and N. F. are chosen from the very best therapeutists, pharmacologists, pharmacognosists and pharmacists. The formulae are carefully worked out and the products tested in scientifically equipped laboratories under the very best conditions. Is it not plausible to assume that these preparations are, at least, as good as those evolved with far inferior facilities by the mercenary nostrum maker who claims all the law will allow?

PROPER USE OF DRUG NAMES.

The Journal of the A. M. A. expresses indignation because a bottle containing Liquor Cresolis Compositus was labeled "Lysol" at a certain institution where Army medical men were receiving instruction. It may be that it had been found necessary to label this "Lysol" because some of the medical men did not recognize it under its official title. This preparation was first introduced to the medical profession under the name Lysol and seems to have supplied a want or it would not have been adopted into the U. S. P. It was generally used and prescribed as Lysol before it became official and as it was nobody's particular business to notify the medical profession of its official title many physicians remained ignorant of this and others proceeded to forget it almost as soon as they heard it. While on the other hand, it was the business of the detail man to keep the name Lysol alive and to get the medical profession and the public to use that particular brand known as "Lysol." The physician merely followed the path of least resistance.

We have many illustrations of this same difficulty in overcoming inertia in the use of patented and copyrighted names. The substance commonly known as Veronal was patented in this country and imported from Germany under the name "Veronal." About a year ago the Federal Trade Commission authorized several firms to make this under the name "Barbital" as there seemed to be legal difficulties in the way of authorizing the name "Veronal." The medical profession was notified through the medical journals and asked for patriotic reasons to prescribe Barbital and not Veronal. Nevertheless, a survey of 200 prescriptions containing this article show exactly four in which the word Barbital was used.

Aspirin shows the value of a name. Acetyl Salicylic Acid was patented in this country and the patentees copyrighted the name "Aspirin" using this on their patented article. Most chemists believe that this patent should not have been granted but the courts sustained it and as it was nobody's business to have the case reopened, the patent stood. It is impossible to state how much good American money went to Germany as a result of this decision which probably would not have stood a second test. It seems likely that the sum was nearer $20,000,000 than $10,000,000. Aspirin became perhaps the most popular and widely used drug on the market prescribed by physicians and used by everybody for everything imaginable. The patent on the substance has now expired but the Company is trying to retain a monopoly of the name "Aspirin" and if it succeeds in this, will make many millions of dollars out of this name. Aspirin was not advertised to the public but only to the physician in what seems a perfectly ethical manner. The physician prescribed it for his patients and the patients recommended it to their

friends and the pharmaceutical houses made aspirin tablets by the millions. At the beginning of the war the Bayer Company saw a chance to make some money and promptly took it. On the ground that the raw materials were expensive and difficult to obtain, the price of aspirin was boosted and then aspirin as such, was practically taken off the market. At the same time, this was flooded with aspirin tablets made by the Bayer Company. The public was notified by extensive advertising that the only genuine aspirin tablets were the Bayer Aspirin tablets and was requested to insist on Bayer Tablets. These tablets were sold by the Bayer Company for less than the price it asked for the aspirin they contained. Of course, if the public could be induced to insist on the Bayer Aspirin tablets, the patentees would have a perpetual monopoly. However, when the patent expired, other firms began immediately to make the tablets of acetyl salicylic acid and these were sold as Aspirin tablets. The Bayer Company, however, insist that the name "Aspirin" is their property and must not be used by others. The Courts have not yet passed upon this question, although it is to be hoped that they will before very long. If the Court should decide that the name Aspirin is public property, the whole problem will be easily solved. If, on the other hand, the Courts uphold the copyright, the name Aspirin can be used only for one particular brand of acetyl salicylic acid and some simple name must be found by which the public and the physician can identify ordinary acetyl salicylic acid. It is to be hoped that this matter will be allowed to remain in statu quo until the courts have decided it. In the meanwhile at least one pharmaceutical house has introduced a new empirical name for acetyl salicylic acid claiming that this name stands for a particularly pure brand of this article. As a matter of fact, careful study of acetyl salicylic acid bought in the open market shows that it is of excellent quality and that the adoption of specific names by different houses would only tend to confusion.

PURCHASE OF NARCOTICS

Collector of Internal Revenue Justus S. Wadell has issued the following statement in regard to order forms for the purchase of narcotics:

Order forms are the official papers issued by the Government for the purchase of narcotics. They are put up in books of ten originals and ten duplicates and are sold to registered parties for ten cents a book. They are used only for the purchase of narcotics. The wholesaler buys from the manufacturer, the retailer from the wholesaler, and the doctors, dentists and veterinarians buy from the retailer by means of order forms. A person using them must be registered under The Harrison Narcotic Law in the district in which he transacts business.

When a person registers in this office, whether he is a doctor, dentist or veterinarian, he is only allowed to prescribe narcotics and cannot purchase them on his prescription blanks, but must be supplied with order forms from this office.

A requisition card (Form 679), when filled out properly, is used for the purchase of these order forms. Only a registered person or one who has power of attorney on file in this office, can use these cards to purchase order forms.

Form 679 properly filled out is required, before any order forms will be sent, as a card index system is kept in this office for reference.

Parties sending for order form books are required to remit ten, twenty, thirty or forty cents, etc., not fifteen, twenty-five, thirty-five, etc.

Form 679 is sent to any registered person on request, and a few forms are inserted in all books leaving this office for future orders.

Full directions for use of order forms are on the back of each book.

All persons are requested not to wait until order forms are entirely used up before ordering others, as pressure of business in this office may cause delay in sending them out.

Before leaving this office the party's registry number, name, address, street and number, city and state, and the Internal Revenue district in which the registered person is either practicing his profession or in business, are inserted in the book.

The section dealing with narcotics in the new revenue law as passed by the House has been eliminated by the Senate Finance Committee. This section provides that "every person who imports, manufactures, produces, compounds, sells, deals in, dispenses, or gives away opium or cocoa leaves, or any compound, manufacture, salt, derivative, or preparation thereof, shall register with the collector of internal revenue of the district his name or style, place of business and place or places where such business is to be carried on, and on or before the first day of July, annually thereafter, and pay special taxes as follows:

"Importers, manufacturers, producers, or compounders, $24 per annum; wholesale dealers, $12 per annum; retail dealers, $6 per annum; physicians, dentists, veterinary surgeons, and other practitioners lawfully entitled to distribute, dispense, give away, or administer any of the aforesaid drugs to patients upon whom they are in attendance, shall pay $3 per annum."

Deputy Hugh O'Connor in the office of Collector of Internal Revenue Wardell gives the following comprehensive explanation of that section of the Federal Narcotic law, which provides for the issue of order forms in purchasing or selling a drug store, a feature of the law which Deputy O'Connor says is not generally understood by many druggists:

"Jones, a registered dealer and owner of the Model Drug Store, wishes to dispose of it to Smith, another registered dealer. Jones gives Smith a Bill of Sale of everything in the store except the narcotics (he can include the price of narcotics in bill of sale) but he must receive an order form from Smith, the purchaser, for the full stock or inventory of narcotics in the store.

"The original order forms, Smith gives Jones, would show how Jones disposed of his narcotics, when he sold the store, and the duplicate remaining in the order form book would show how Smith procured the narcotics, or to simplify matters, you buy the stock of a drug store the same as you would purchase narcotics from the wholesale house.

"A new narcotic license must be obtained by Smith for the location of the Model Drug Store, before the purchase can be made."

Grip of Germany on Many Industries

A comparison of revelations made by the office of A. Mitchell Palmer, alien property custodian, covering a period from the time America entered the world war until the present shows a startling repetition of certain names among those representing German interests. These revelations have come at considerable intervals, so that only by a close comparison of the names involved does it become clear that the trail of the Imperial Ger-

man Government left here by former Ambassador von Bernstorff, usually revolves around the same group. A name often mentioned in these revelations is that of Richard Kny. He was born in Germany, but is a naturalized American citizen and the father-in-law of George Simon, an enemy alien, who was manager of the Heyden Chemical Works at Garfield, N. J., until they were seized by the alien property custodian.

It is said in authoritative circles that the work of unraveling the connections of Kny and his attempts to control the drug, chemical and surgical instrument business in the United States have been far more interesting and absorbing than any detective fiction ever written. The facts in Kny's case are said to have far outstripped the imagination of any literary dreamer in working out international plots and situations.

The four principal companies in which Kny has been found to be either the head or heavily interested are the Heyden Chemical Works, Garfield, N. J.: Eiseman Magneto Co., New York; Kny-Scheerer Co., New York, and the Chemical Exchange Association, the last-named being the camouflage devised by Kny and Dr. Hugo Schweitzer to control the carbolic acid supply of the United States and prevent it from going into the manufacture of munitions to be used against Germany. The official revelations in connection with this last-mentioned concern were made public by Mr. Palmer on October 18th.

The cunning and secret work of Kny and his associates was so well covered up that only the most careful work on the part of Mr. Palmer's assistants succeeded in uncovering it. The question which now interests the drug, chemical and surgical instrument trade is whether or not other companies will be found to be the property of the same crowd of aliens with which Kny was associated and which are believed to be responsible for the long list of explosions, burnings, ship sinkings and other outrages which have infuriated the people of the United States nearly every week since the war began.

The Kny-Scheerer Corporation, one of the biggest dealers in surgical and electro-medical instruments, scientific apparatus, hospital and sanitarium supplies in the United States with offices at No. 404 West Twenty-seventh Street, New York, used the identical trademark as the Jetter & Scheerer Co., of Tuttlingen and Berlin, Germany. This trademark appears on the letter-head of the Kny-Scheerer Corporation and appears in the advertisements inserted in German technical publications by Jetter & Scheerer Co., of Germany. Official investigation has shown within the past few days that both of these companies are still using this trademark.

The Kny-Scheerer Corporation had the exclusive American agency for the products of its parent concern, the Jetter & Scheerer Co. The German concern claimed to be controlled by the German Government and E. S. Beck, its secretary, until Mr. Palmer seized the company, was a brother-in-law of the Scheerer who owned most of the parent concern. This Scheerer's wife is said to be a close relative of Count von Buelow, the well-known Teuton official.

Evidence now in the hands of the alien property custodian shows conclusively that the Imperial German Government, through careful investments made by Ambassador von Bernstorff in this country, tried and almost succeeded for a time in controlling the drug, chemical and surgical instrument business of this country and imperiling the supplies of these articles required by the Army and Navy of the United States. It is believed the master brains who advised von Bernstorff and Dr. Albert, the official German go-between, were Dr. Hugo Schweitzer, former chemist of the Bayer Company, and Richard Kny.

New Members

Wolf, Geo. L., San Francisco.
Player, L. P., San Francisco.
Ireys, Junius, Lakeside.
Mann, E. C., San Diego.
Carpenter, C. R., San Diego.
Macpherson, Jas. F., East San Diego.
Bloch, Herbert L., San Francisco.
Boyers, Luther M., Berkeley.
Burns, R. E., Alameda.
Van Tassell, F. H., Berkeley.
Jones, Edwin F., Oakland.
Downes, Chas. S., San Francisco.

Transferred

De Ville, Leon, from San Diego Co. to San Francisco Co.

Hawkins-Ambler, G. A., from Los Angeles Co. to San Francisco Co.

Saphro, Elisabeth M., from Los Angeles Co. to San Francisco Co.

Deaths

Arnold, Chadwick Evans, a graduate of Cooper Medical College, Calif., 1901. Licensed in California, 1901; died on November 7, 1918, from pneumonia, following influenza.

Allen, W. L., a graduate from the King Eclectic Medical College, Iowa, 1889. Licensed in California, 1901; died in National City, Calif., November 18, 1918

Billingsley, Carey Val, a graduate of California Eclectic Medical School, Los Angeles, 1914. Licensed in California, 1915. Died in Santa Ana, November 3, 1918, from influenza.

Burton, H. G., a graduate of the University City of New York, 1869. Licensed here, 1894. Died recently.

Long, Alfred Dow, a graduate of Harvard Medical School, Mass., 1907. Licensed in California, 1910. Died November 17, 1918, in National City, Calif.

Murphy, Lewis Jerome, a graduate of the Medical College of Indiana, 1903. Licensed in California 1906. Died in Los Angeles recently; age 41.

McLean, Robt. A. Graduated from Medical Dept. Univ. of Calif., 1874. Died in Berkeley, Calif., December 5, 1918; age 67.

Stirling, Chas., a graduate of the College of Physicians and Surgeons, Chicago, Ill., 1888. Licensed in California 1889. Died in Oakland, Calif., November 28, 1918.

William Lundy Brown, M. D., 1133 Ingraham street, Los Angeles; Bennett Med. Coll., Ill., Jan. 2, 1875; licensed Nov. 12, 1896; professor of physiology at Bennett Coll. from 1891 to 1892; a member of the health dept. of So. Dakota; agency physician of the Sioux Indians, Yanktown, South Dakota, during the "Wounded Knee" outbreak; aged 67; died at his home Nov. 21 from uraemia due to chronic insterstitial nephritis. He is survived by his two sons, Dr. T. Floyd Brown of 950 West Sixth street and Mr. Everett F. Brown of Oakdale, Cal.

Captain Harvey L. Thorpe, M. D., Los Angeles; Rush Med. Coll., Ill., March 16, 1909; licensed April 20, 1909; member of the Los Angeles County Medical Association; aged 36; died of pneumonia Nov. 4, on a transport en route to England, where he was buried. He is survived by his wife, at the Rex Arms, his mother, Mrs. K. F. Thorpe, 747 West Eighteenth street, and three brothers, Dr. Lewis S. Thorpe of Los Angeles and Covina; Mr. Benjamin Thorpe, president of the San Diego Chamber of Commerce, and Mr. Charles Thorpe of the L. A. high school faculty. His mother was one of the charter members of the Friday Morning Club.